# TEACHER-STUDENTS RELATIONSHIP AND ITS POTENTIAL IMPACT ON MATHEMATICS LEARNING: AN AUTOETHNOGRAPHIC INQUIRY

Niroj Dahal

A Dissertation

Submitted to

School of Education

in partial fulfillment of the requirements for the Degree of

Master of Education in Mathematics

Kathmandu University

Dhulikhel, Nepal

May, 2013

# DECLARATION

I hereby declare that this dissertation has not been submitted for candidature for any other degree.

_____

Niroj Dahal May 17, 2013

Degree Candidate

# DEDICATION

This work is profoundly dedicated...

To my Father and Mother whose guidelines, vision, wishes, and blessings have given me the strength to live my life uniquely.

To Sahara Chalise, whose suggestions and vision of life are always appreciated, I never-never forget you in my part of life.

To all my senior gurus who imparted their knowledge to accomplish a meaningful and remarkable journey of my life with lots of hope to run better life from the field of education for future generation.

To Kathmandu University School of Education which shaped by research journey.

To my senior brother and sisters without their sacrifice, love, care and continuous support I would not have reached this stage.

To my lovely daughter Sushankha.

AN ABSTRACT OF THE DESSERTATION OF

Niroj Dahal for the Degree of *Master of Education in Mathematics* presented on May 17, 2013 at School of Education, Kathmandu University.

Title: *Teacher-Students Relationship and its Potential Impact on Mathematics Learning:* An Autoethnographic Inquiry

Abstract Approved

| | |
|---|---|
| Assoc. Prof. Bal Chandra Luitel, PhD | Binod Prasad Pant |
| Dissertation Supervisor | Dissertation Supervisor |

This dissertation portrays my lived experience and is an exploration of my pedagogical practices as a learner, as a teacher and as a facilitator focusing on relationship between teacher and students shifting from traditional to transformative approach (e.g. meaning-centered and life-affirming) in teaching and learning. Based on my lived experiences as a learner from school to master level and as a teacher in different places in different times, I generated my research problems about the paradigm of teaching and learning in different stages with various kinds of relationship in mathematics learning and teaching. The aim of my research project was to examine and explore deep settled behavioral practices and seek to change myself and others towards transformative/constructivist approach of learning in terms of teacher-students relationship to maintain quality of education for future generation.

In this study, I used interpretivism, criticalism, and post modernism research paradigms to embrace multi- paradigmatic research design. Interpretive research paradigm helped me to be subjective to address the emergent issues that emerged

during the research process; critical paradigm enabled me to observe educational phenomenon critically thereby helping me to develop research problems from finger pointing to self and other, un/helpful dualism, envisioning and shifting process. Post modernism helped me to present through multiple genres of writing like poem, narrative, fiction, poster, letter, e-mail, text SMS, etc. to make my text wealthy, and pedagogically thoughtful about my experience regarding paradigm of learning and teaching.

Staying myself within multi-paradigmatic research design space, I used auto-ethnography as a fusion research methodology in my inquiry. Auto-ethnography helped me to place myself within my culture thereby enabling me to explore multilayered pictures of my educative practice of self and others. Auto-ethnographic inquiry also helped me to examine the pedagogical culture and context from different perspectives as students, teachers, and researcher thereby offering space for interpretation, transformation and envisioning.

As a mathematics pedagogue, I investigated that traditional teacher-centered, transmission pedagogy, culture and content free mathematics curriculum and practices are some unhelpful dualisms to make our mathematics more meaningful which could only be achieved through better relationship with students, and student-centered pedagogy. I predicted that student's active participation in learning, social and cultural enactment, and transformative pedagogy promote our practice to be more meaningful, and learner centered which in turn develops cordial relationship. My vision to develop cordial relationship between teacher-students is focused on curriculum a bit differently in this study.

---------- May 17, 2013

Niroj Dahal, Degree Candidate

*Master of Education in Mathematics* dissertation of *Niroj Dahal* presented on May 17, 2013.

APPROVED

_____ May 17, 2013

Assoc. Prof. Bal Chandra Luitel, PhD

Dissertation Supervisor

_____ May 17, 2013

Binod Prasad Pant

Dissertation Supervisor

_____ May 17, 2013

Sahadeb Upretee

Research Committee Member

_____ May 17, 2013

Suresh Gautam

External Examiner

_____ May 17, 2013

Prof. Tanka Nath Sharma, PhD

Dean, School of Education

I understand that my dissertation will become part of the permanent collection of the library of Kathmandu University. My signature below authorizes release of my dissertation to any reader upon request for scholarly purposes.

_____

Niroj Dahal, Degree Candidate May 17, 2013

# ACKNOWLEDGEMENTS

First of all, I wish to express my gratitude to the almighty GOD for giving me the strength to perform my responsibilities as a researcher and complete the project within the stipulated time.

I feel privileged to express my eternal gratitude to my dissertation supervisors, Assoc. Prof. Bal Chandra Luitel, PhD and Mr. Binod Prasad Pant, Visiting Faculty (Lecturer), School of Education, Kathmandu University for their whole-hearted supervision during my organizational attachment period and for their contribution to my project. Bal Chandra sir provided me with context, content and way to begin my new life in my educative journey through this project in multiple ways whereas Binod sir's encouraging voice, friendly behaviour, unconditional support, constructive suggestion and cooperative mentoring always enabled me to carry out my project to the end.

I would like to express my deep gratitude to Prof. Tanka Nath Sharm, PhD, Dean of School of Education, and Prof. Mahesh Nath Parajuli, PhD, HOD of Educational Leadership and Development Studies, School of Education, Kathmandu University for their facilitation and support in my project. This study would not have been possible without their support.

I would also like to express my sincere gratitude to Asst. Prof. Tika Ram Pokhrel, Sahadeb Upretee, Amrit Bahadur Thapa, Amrit Paudel, Pundary Phuyal, Dil Bahadur Gurung, Sheshakanta Pangeni, Nilam Shrestha, and Toya Nath Sharma for their facilitation and inspiration throughout my new dimension of learning journey at School of Education, Kathmandu University.

I express my sincere thanks to my respectful and inspiring co-learners (2011 Feb. Batch M.Ed. students), namely B.R. Maharjan, Bimlesh Mishra, Dil Kumar Maharjan, Dilipkumar Acharya, Hari Bista, Ketana Thapa, Pratima Sapkota, Ramita Lama, Santosh Paudel, Satya Raj Joshi, Subash Karki, Surendra Mishra and Surendra Singh Thagunna, who always motivated me to move ahead. I express my sincere thanks to all of them for their valuable suggestions, ideas, good advice, inspiration and support in my life.

I express my sincere gratitude to the Principal of BalKumari English Secondary School, Middle Point English Boarding High School and my staff teachers Mr. Yadunath Dhungana, and Mr. Rajendra Maharjan for encouraging and managing time for me to finish this project.

I extend my deep gratitude to my brother Ramesh and sisters Binuka and Sunika who urged me to continue my educative journey providing valuable suggestions and support.

Last but not least, my gratitude goes to the entire team of teachers of different school for their patience, cooperation, questions, and answers during the text data collection in this project and my colleagues who gave me good advice, suggestions, inspiration and support.

Lastly, I would like to thank everyone who directly or indirectly supported me in my project and to everybody who helped in any way. I apologize for not being able to mention their names. I thank you all!

# ACRONYMS

| | |
|---|---|
| APA | American Psychological Association |
| B.Ed | Bachelor of Education |
| CAMT | Computer Application in Mathematics Teaching |
| HOD | Head of Department |
| KU | Kathmandu University |
| LSA | Lateral Surface Area |
| MPhil | Master of Philosophy |
| M.Ed | Master of Education |
| PhD | Doctor of Philosophy |
| SLC | School Leaving Certificate |
| SMS | Short Message System |
| TSA | Total Surface Area |
| TU | Tribhuvan University |
| VDC | Village Development Committee |

# TABLE OF CONTENTS

# LIST OF PICTURES

# CHAPTER I

# INTRODUCTION

## Chapter Overview

> *Some activities primarily affect future well-being; the main impact of others is in the present. (Becker, 1993, p. 11)*
>
> *Great teachers are not born, they are made. Beginning teachers become accomplished teachers, and skilled teachers become great teachers, by thinking hard about their teaching and finding ways to improve it. (Artzt, 2002)*

In this chapter, I articulate my research questions based on my lived experience of life as mathematics learner and novice mathematics teacher in different times, places and responsibilities. I discuss the critical movement of my life as a student from primary to master's level, as a novice teacher, a novice researcher and a novice teacher trainer.

I have constructed different topic/section creating a base for research problems to generate my research questions. The main theme of this topic is experiences of my pedagogical practices in various forms of relationships (Cold, Warm, and Cordial). Likewise, I have discussed the significance, purpose of the study in this chapter.

## Setting the Scene

It was my first time sitting in Educational Research Group for Master's dissertation. This was held on the first week of my masters' program of 2012 in the third semester; soon after which I would have to finish the masters' research. In my mind, I was lost in thought what Educational Research issue was all about. As, I was

informed by Kathmandu University, an MPhil student in Educational Leadership, Toya Nath Sharma, would share his methodology that he was using in his research study. As Toya started sharing his ideas, I started getting confused as I did not know anything what he was explaining. Concerning his methodology, it was Multi-Paradigmatic Research Design. Suddenly, the native and weird word of social distance that Toya mentioned attracted me, the word made me wonder, when I asked him what the meaning of Social Distance was, Toya answered, “gap between teacher and student in learning”. Yet, again I became impressed with the meaning given. Those words were spinning in my head. For me the phraseology ‘Social Distance’ is typically related to someone who has the highest power in leading students. From the discussion with Toya, I used the concept of focusing and zooming again I borrowed his word so that I came to identify my research topic. Many many thanks to Toya sir for shaping my research journey as novice researcher.

**Figure 1.**My research methodology course classmates (2011 Feb Batch), From left: Hari Bista, Subash Karki, Ramita Lama, Satya Raj Joshi, Ketana Thapa, Pratima Sapkota, Dilip K. Acharya, Surendra Sigh Thagunna, Dil Maharjhan, Santosh Poudel, Bimlesh Mishra, Buddha Ratna Maharjhan, Me and Surendra Mishra.

## Prologue

Sometime around March 2012...

It's around 4:00pm, I inertly inquire myself "What sort of research topic should I choose? How can I be able to choose it?" as I waited for the bus in an early cool evening for my university. As I sat and waited for the bus to come, which was unusually late that evening and threatened to dampen my mood, my thoughts continued to wander, this time, about what our Professor Luitel told us in our Research Methods class: "Start writing your stories...narratives...about yourself...your experiences and keep on writing." Finally, the bus arrived. "A vacant seat! Great!" I almost uttered loudly as the bus was always full in the evening. As I sat down, my thoughts continued: "How do stories and narratives support my research and most especially in accomplishing my Re-entry Action Plan?" my skepticism was trying to win over my good mood. "Well I just have to write my stories and see what comes out of it", I said to myself trying to sound positive this time. But how and from where do I begin my story…???

## Interlude

"Who among you here have heard the word "relationship" in your learning or teaching experiences?" Sahara asked this question during our first class in Research Methods in Education (2012) in the university. I raised my hands sensing that nobody was ready to speak about it. So I did. I have not only heard about it but had experienced, felt and got overwhelmed by it. Moreover, as days went by, our discussions towards this subject continued to expand and grow. As I slowly began to understand, I asked myself *"Was I just being too dramatic about my interpretation of relationship (Teacher and Students Relationship in Mathematics class) or is my mediocre understanding of this theory trying to rule over me again?*

Now, I know from where to begin my story...

## Background

As a student of mathematics, I faced different problems in the field of teaching and learning. As a student, it's hard to understand the mathematical concept in simple and easy ways but, on the other hand, as a novice teacher of secondary level to facilitate my students, it is hard to show and demonstrate new concept as well as old concept in the simplest form because of different forms of relationship of teacher and students. As I heard from my elder, without vandalizing old one, new one will not be created, so we are here in this world to kick the old out and develop a new one. We must try to change our teaching and learning process according to the need of the nation and develop easy ways to understand and to enlarge better teacher and students Relationship in Mathematics classroom in the teaching and learning process of quality education for future generation.

Before joining the contemporary approaches of twenty first generations University, I'm not fully doing justice to my student and I'm not satisfied with my own approaches of teaching as well as learning. It has only increased the level of gap between teacher and students with different forms of relationship. But now, my styles of teaching and learning have been slowly changing to enlarge better relationship in mathematics classroom. So, my hope and ability to show my performance is increasing and is about to satisfy myself with my own work.

Studying is a long life process, from where we develop our own personal skills, knowledge and power to deal with different subject matter, and face different problems. To understand why such relationship in mathematics have surfaced in my questioning self, allow me to take you to my beautiful and not so beautiful experiences as I came face to face with this pedagogical approach.

*I was not happy at the beginning of the class of mathematics in my childhood because, I felt mathematics was a boring subject and besides, the behaviour of my mathematics teacher was not so good and fit for me since my childhood. I didn't care about that so I guess mathematics was a 'hard' subject. But, after sometime, my thoughts changed. I knew that the mathematics was not only the solving the problems of the given content but getting the empowerment in future. So at this time I categorized mathematics in two ways i.e. one may be pure mathematics and another is mathematics education. Both of them have different aspects and their own specific ways to define. But both have their importance in their area and I suppose both of them have their own importance in the related fields.*

*Classroom by definition is a place where students meet to study the same subject. A teacher, who took a leadership role in leading discussions and getting students to be involved in learning the subject taught, controlled this environment at one time. Nowadays, the role of a teacher in a classroom environment has been reversed. Students are allowed to take the leadership role in creating and leading discussions. Just as roles of the teacher and a student have changed in a classroom over the years, so have the relationships between a student and a teacher.*

***Source: (Diary, 2012)***

*Now, I am convinced that mathematics is not only to solve the problems in the context base but also that it has its' educational importance. Why we are solving all mathematics problems just as in solving ways? What are its' implications for day to day life? Is all knowledge in mathematics not changeable? Is mathematics just the transmission of the knowledge from teacher to student? And what are the main issues to create a social distance in mathematics between teacher and students? These sorts of question arise in my mind so, I convince myself that mathematics has not only pure part but it is also having the important philosophical part.*

*My autobiographical beliefs and thoughts as a student in the school level to till now as well as my critical thoughts towards my mathematics teacher as well as subject matter in my childhood to Master level in different from of relationship are described here. I can easily say that my mathematics teacher treated me and other friends in a different way and there was a big gap between teacher and students. At that time, I thought mathematics as playing doll and my mathematics teacher as remote controller because he just controlled us wasting the time. Moreover, dolls could be changed according to our desire and wants. It means if we wanted to make the doll beautiful then we could easily make it so.*

*When, I completed class V from a government school, my father lowered my class and admitted me in a private boarding school in class III. That time I didn't have any idea about my demotion to class III. When I got good percentage in mathematics, my father encouraged me to get better marks in all the subjects and my math teacher was like a symbol of truth for encouraging me for further performance but he never encouraged my friends who secured less marks than me. At that time I thought mathematics was an easy subject for me because all the terms and formulae were just the repetition for me. So I stood class first. I continued studying. When I was in class VI in the private*

*Many years ago, as we have read and heard, student teacher relationships have been very formal, distant, and the teacher's judgment was accepted. With almost 20 years of experience as a student, I have come to learn the relationship between student and teacher can vary depending on many characteristics. Since everyone has a different background and a different character, it is almost difficult to say how a teacher should relate to a student or vice versa. I do believe that student teacher relationship should be professional, yet not so professional that students fear to approach. Teacher, student relationship should be formal, yet. Teacher student relationship should definitely not be judgmental, and it should allow the teacher on her or his part to take time to get to know the student.*

***Source: (Diary, 2012)***

*school, I found all of my school friends of government school were in class VIII so, I got frustration. Then I left the private school and again joined the government school in class VIII at the end of the session. I appeared the final examination sitting with one of my old friend and copied his all subject matter except in Compulsory English. At that stage, I didn't know the behaviour of the mathematics teacher in that school. When the results were published I passed. So I was very happy to be promoted to a higher class.*

*After my secondary level of education, I didn't know how much I had to struggle. But I was happy in class IX thinking of my possible after secondary school life. The mathematics teacher of the secondary level of that school seemed like a frightful man. I was afraid even to look at him. This created a big gap between him and me. He came to the class and said something and I tried to understand his language and couldn't solve any problems at that time. I thought that mathematics was a dream angel and mathematics teacher as a Ghost. Angel may not be seen so I thought mathematics like a dream and the behaviors of the mathematics teacher seems rude like a ghost. When, I secured zero mark in the examination I felt bored about mathematics and guessed how I could secure good marks and came up with question in mind, which factor disturbed in my study? By the time I completed my class IX getting zero marks in mathematics. My father may not*

*From my experience and from my perspective, I would like to wind up by stating that educators should be professional, formal, not judgmental, and sensitive to the student's background and their needs. These factors are important for a student-teacher relationship to exist. If one or two factors are not present then clearly there is really no association between a student and a teacher, and students will come to perceive educators as obstacles they just need to overcome. Here my ideas couldn't be final.*

*pay any attention to upgrade my progress. I was good at the entire remaining subjects except at mathematics. So, my mum made a plan to send me to my sister's home, near my sister's home there was one of the best mathematics teachers, he was my school mathematics teacher. So according to the plan of my parents, I was sent to my sister's home and I joined an extra class with that mathematics teacher. He changed my ways of thinking power and enabled me to get good marks in the S.L.C. My thought towards mathematics teacher changed at that time and so was his behavior towards me.*

*After completing S.L.C., I became able to continue my study in mathematics. At that time I thought mathematics as an interesting subject to make me active in learning. But when I was in the second year of the Bachelor level, again I got frustration towards mathematics because of the same issue i.e. behaviour of a mathematics teacher towards me. Why the behaviour of mathematics teacher creates bad relationship in between teacher and students? This also impacts on the outcomes of the performance of both teacher and student too in mathematics. More importantly, I had to search the implication of each mathematical application in real world, and if I was able to search that sort of implication I guess I would become a good mathematics teacher of Nepal.*

In my thinking, my mathematics teacher was a frightful man, he always frightened me in various ways in his class. He entered the class with a stick, probably to beat us. That time I guessed he was not a teacher but was like an animal in my school level. I thought he came to our class just to beat us. I didn't understand his languages of teaching because of his behaviour towards me. I just wanted to escape away from him; therefore I missed some classes just to escape from him.

From the above background, all the critical and reflective thoughts towards mathematics are differing in context. When I secure good marks that time I became happy and my reflective and critical thoughts were positive even though for mathematics teacher and if I secured less marks in the examination that time my thoughts were opposite. These all situations depict the nature of mathematics and reflective and critical thoughts of an average student towards mathematics which may be different for each individual in the present context of Nepal.

Mathematics is a subject which seems to be a difficult subject in the context of Nepal but I guess in other countries too, the problems are the same in mathematics for creating the high level of relationship between teacher and students. Students feel mathematics difficult and usually they hold misconceptions towards the subject matter which create the distance in mathematics. In my view, it is easy to discuss and hard to define which part is creating the gap between teacher and students in mathematics learning.

**A Gate Way …**

*I came to the capital city (Kathmandu) from a remote mountain district of Dolakha in 2010 for a purpose to join Master level. I got enrolled at Kathmandu University School of Education in M.Ed. program in Mathematics Education. I got opportunity to join regular classes after two/three years since my studies in bachelor's classes were theoretically regular but practically I rarely attended the classes. I had been a tourist student in the bachelor level. To be a tourist student is really a very painful experience in life but at least it is a good opportunity in TU to continue study no matter we attend classes or not (no any defined rule). I think that only I was not a tourist student; there*

*were hundreds of students in the university. It made me self dependent in study and allowed for career development without rigorous educative process.*

**My Hope in M.Ed. Study**

*I admitted to the M.Ed. program in School of Education, Kathmandu University. I think that it was an important event in my life. I had never thought of studying in this university. I felt that this opportunity changed my mission, vision and strategy of life. I learnt a lot new pedagogical practices together with contents during my study to develop cordial relationship with students in mathematics classroom.*

*I was an inexperienced teacher; though I used to think myself as a good teacher. When I participated in the presentation and discussion, I realized that I was far behind in my pedagogy. How can I develop good relationship? I found that classroom teaching and learning was interesting and reflective, which helps to understand the students and teacher in different ways. I had not thought of such approaches during my educative process. Classroom practices were more practical and discussion oriented. Though some of the courses were not new, I got a lot of opportunity to learn the new ideas of group work, presentation, paper writing, analytical and reflective practice, due dates of assignments and assessment. I feel that it helped me to transform my pedagogy from traditionalism to constructivism to develop better relationship with students in future. I think that it was the greatest achievement to me from the course which made me think of my old pedagogy of teaching once again.*

*Our classroom practice was dialogic and interactive though some contents were not as interesting. In my understanding the course helped me to*

*explore educational issues related to pedagogy and practices in research. Certainly, this has been a great help to me to be critical, creative and reflective. I think the course helped me to be thoughtful and explorative. In some classes, however, presentations were almost one-way communication. The presenters used to present and others were passive listeners. There was no group discussion and open sharing of ideas. This made me feel that some courses were boring. I did not find the course so interesting at first in the classroom discussion. Though there was dialogue, interactions and presentations, the content did not cover the recent trends and issues. The contents were of old modality and the courses were not enough to be proactive planner, reflective thinker and pedagogically thoughtful. How can this ways of teaching and learning support in teaching and learning process and make the teacher-students relationship better.*

**Good! The Way I Started…**

*One day in winter 2012, I was hovering over the computer monitor to find some teaching materials in the internet. I opened the internet browser and typed www.google.com on its search area. Google search engine opened. I typed "Algebraic Teaching" on the search box. There were lots of sites ready to be opened. I opened some sites and tried to find some materials for the day's lesson. I found a reading material on the topic and saved it on the desktop. I got the material printed and then photocopied to distribute it to all the students.*

*Students came into the class at ten in the morning. I had already kept some cardboard boxes, some pencils, markers, cardboard papers, print papers and a role of masking tape on a table. I welcomed students in the class. I*

*wrote the topic of the day "Algebraic teaching" on the white board. Then I distributed some blank sheets to each student and asked them to write what they knew or thought about algebraic thinking without reading any material. I let them twenty minutes to finish their writing. I facilitated them while they needed my help during the time they were writing. Some of them, finished within twenty minutes and some could not and I allowed five minutes more so that all would be able to complete their writing. All of them finished writing within twenty five minutes.*

*Then, I provided them with the reading material that I downloaded from the internet and let them fifteen minutes to read and ten minutes to write what they learnt after reading. They finished reading and writing in time. Then I divided them in four groups with three in each and asked them to discuss in group about what they had known before reading and what they learnt after reading. I let them discuss for fifteen minutes.*

*The discussion on the topic continued for fifteen minutes. The students shared their views before reading the paper and after reading it. Then they summarized their views in a print paper in three groups. Each group presented their views and opinions turn by turn by fixing the written print papers on the wall.*

*In the second session, I showed three boxes with some pencils in two, and some cardboard papers in the third. Then I asked the students in three groups to generate an idea of algebra from each box. A group wrote an equation to represent the relationship between numbers of pencils in two boxes, next group wrote the concept of index number from the box of cubic shape and another group wrote their concept of inequality from the three*

*boxes. Then they discussed in the group about their concepts of algebra out of those materials. Lastly, a member from each group summarized their algebraic thinking about the objects under discussion.*

*I think how to use technology to find teaching and learning materials has been a very important part in my educative process that I learnt at KU. I was heavily depended on textbooks and some reference books for teaching and learning. But when I joined KU, I learnt how to find reading and teaching materials on the websites and how to use them in the classroom teaching and learning. Multimedia devices in the classroom teaching and learning of mathematics have become usual to me. In my understanding, the application of new technology has helped a lot to enhance the teaching and learning process of mathematics, which would help the students to understand their mathematics teacher. In the mean time, the teacher also understands the feelings, thoughts, label of intelligence of the students to develop different forms of relationship.*

*I was not much aware of the teaching materials and activity-based teaching and learning mathematics. When I participated in peer teaching, I got ideas of activity based teaching and student centered teaching through various interactions and discussions. I think mathematical knowledge is constructed and acquired actively by the subject of recognition. It is not acquired by transmission or discovery. Enforcement by others becomes detrimental to constructive activity (Nakahara & Koyama, 1998). So, I tried my best to provide the situation to the students to learn by themselves through reflective practices in the classroom.*

*My students reflected on what they thought about "Algebraic Teaching". I think it was the most important part in constructive teaching and learning. It created a situation of learning, bridging and connecting. Nakahara and Koyama (1998) further state that viable mathematical knowledge is agreed in groups and becomes inter-subjective knowledge. While students read the paper on "Algebraic Thinking" and then they discussed in-group, they came to a common conclusion in each group through compromise. The demonstration of the boxes with pencils and papers linked algebra with other concepts of geometry and arithmetic. To me, it was a constructive approach of teaching and learning in the classroom where my role was just to facilitate them and encourage them in discussion and sharing ideas. I think my pedagogical practices in the classroom became more student centered and self reflective.*

**Where am I in My Educative Journey?**

*Now, I feel that my teaching and learning of mathematics has been guided by constructivism. Theoretically, I am strongly convinced of the constructivist approach though practically I am still a novice educator. I think there are three levels of teaching and learning. One is realist based teaching and learning in which the teaching and learning goes on as it was before. The teacher does not seek new ideas and methods. S/he follows the same technique for years. It is of more traditional nature. The second one is the actual classroom teaching and learning based on reality and theoretical aspects. That is to say that it is based on the reality but brings theoretical aspects to link in the classroom teaching and learning. I have been trying this way these days. I think I can not follow all the theoretical assumptions in my classroom*

*due to time constraints, resource constraints and constraints of socio-cultural context. The third level I think is the hypothetical level and is more theoretical and ideal in practice. My present educative practice is a shift from more traditional and realist to more theoretical actualized pedagogy through continuous mentoring of seniors, reading of books and papers and discussion with students.*

*From the perspective of teacher educator, I am gaining new insights of teaching and learning. I found myself a novice educator and felt that there was need of more in-depth study to develop my career. It is really a difficult work to change one's own conventional beliefs, attitudes and norms into new approach. So, I was feeling difficulty to cope with the new environment at KU. But slowly I got adjusted in the new environment easily. I have been learning some new ideas of critical thinking, creative writing and cooperative working in a team. So, in my understanding KU School of Education has been a learning organization for me.*

**Who is the Researcher?**

It is in your hand how to wake up your life. Ambition and dreams have never brought me at all to a thought of becoming an educator until I finished college for education courses. Having placed myself in the actual teaching right before graduating Bachelor in 2008, I have shaped up my ideals and have learned to face new responsibilities in life being part of the academia moving towards a vision and mission. I began as a full-time secondary mathematics teacher handling ninth, eighth, seventh and sixth graders raging from 150-200 students. I am graduated in Bachelor of Arts in 2009 majoring in Mathematics and Economics from Patan Multiple Campus, Lalitpur, Nepal.

My passion for teaching has gradually developed since I concentrated on teaching mathematics. My day-to-day experiences with my students of complex personalities and encountering different students with learning problems honed my skills in classroom management which contributed to a healthy teaching and learning process. I also slowly developed certain degree of understanding of the learning process of students at 12-15 years who are in the crucial stages of growth which calls for varied teaching approaches and strategies.

Though at times frustrations in teaching mathematical concepts have come along the way; yet unaware of my inner drive, I became internally motivated and extremely absorbed in planning varied techniques in carrying out the lesson's objectives. Preparing daily lesson plans, and other teaching resources required me to devote even more than two-thirds of day to teaching. The feeling of satisfaction I had had after a day's lesson seeing my students' smiles despite the intricacies of the mathematical concept and unspoken will of understanding - if only they could dig out my interest in teaching mathematics, overwhelms me. After having taught for three years, I realized that I have inscrutable love for teaching and that I found a teacher in me.

From then on with my experience and training, I was assigned to coordinate some teachers and assist them in their instruction. Articulation across the curriculum, the academic performance of students, and pedagogical practices had been the focus in every discussion. With this, I started to widen my horizon in teaching even more and engaged myself fully towards the educational endeavor. I have been involved in professional development which aims to better prepare student teachers in the field. I may not be born a teacher but I am yielding to be a transformed teacher after having taught for four years. This transformation is hoped to address failures in mathematics

and students' low performance in mathematics. Students' retention of the mathematical concept is very poor and that mastery of the concept is hardly achieved. Would it be a teacher factor? Would it be students' concept of mathematics as a difficult subject? Would it be because of teacher-students relationship? Would it be attitude towards the subject? Would it be in the assessment process? These are some of the overwhelming questions that I must address as a teacher, yet I resolve to begin my transformation by examining all the tormenting moments in my own educational journey as a learner, a teacher, and a teacher educator. It is only through weighing up my own beliefs, perspectives, predispositions, and standpoints about teaching and learning that I can revive my own beliefs of my students' capacity to become lifelong critical thinkers and real-life problem solvers through the discipline of mathematics.

I know this would bring me to the light of improving my teaching practices and could also bring light to others. The success of my students is definitely mine too. Their failure is mine too. Indeed, the ultimate aim of my teaching is my students. It is they who let me recognize the teacher in me. So as a novice researcher: I try to find out (research) on this issue.

## Problem Statement

Based on the above background, I have identified a two-fold (teacher and students) problem that will serve as a point of different approach for the present investigation (inquiry) on the basis of my learning process. There is an existing body of literature on the link between teacher-students relationships and student outcomes. There is some evidence that teacher-students relationships are associated with students' academic performance (Decker, Dona, & Christenson, 2007). I found that, there have also been studies conducted that demonstrate the students who have far relationships with their teachers have lower scores on socio-emotional adjustment

measures than students who have positive relationships with teachers (Murray & Greenberg, 2001). From my lived teaching and learning experience, for students at-risk for referral to special education, the quality of the teacher- students relationships is thought to play a role in determining which students are eventually referred (Decker et al., 2007).

From different source (Newspaper article, internet access and unpublished dissertation) I found a number of studies were conducted in the 1960s and 70s focusing on student-teacher relationships and students with emotional and behavioral disorders, including some qualitative studies (e.g., Lederman, 1969; Morgan, 1979; Wachstein, 1972). More recent studies on teacher-students relationships tend to be quantitative in nature and focused on a broader population of students. In studies, as mentioned above students and teachers typically fill out rating scales, and researchers correlate the results to look at the effects of teacher-students relationships on students' school outcomes (e.g., Murray & Greenberg, 2001; Decker et al., 2006). These studies, while numerous, do not shed light on how or why strong, positive student-teacher relationships support students. Decker et al. (2007) pointed to a need for more information about the behaviors that lead to positive teacher-student relationships in mathematics learning which myself found from above mention justification.

From above, all previous research is focusing on positive/negative relationship and students' academic performance but here my concern is to investigate the importance of teacher-students relationship in the present context of Nepal to develop a cordial relationship in school in mathematics learning and teaching process from my own lived experience. Moreover, I try to investigate what sort of relationship exists in Nepalese school.

## Purpose of the Study

The current study focused on diverse student voices to convey the dynamics of the teacher-students relationship in mathematics classroom as seen through the eyes of students/teachers in different schools/institutions.

The main purpose of the inquiry was to explore the problems and challenges incurred in teaching and learning mathematics in classroom in various form of relationships with teacher and students from the initial stage of my learning and teaching journey. More specifically, the research enabled me to identify the reasons as to why students feel a gap between teacher and Mathematics Subject, and how can we create mathematics as learner-friendly in various from of relationship? The purpose was not only to tell the story but this research project enabled me to suggest the viable pedagogy so as to enrich the present mathematical pedagogy to reduce social distance between students and teachers in Mathematics classroom.

## Research Questions

This study had drawn on auto-ethnography with multi-paradigmatic tradition. An auto-ethnographic study allowed me to position my life experiences and my role identity, beliefs, knowledge and teaching practices finger pointing to self and critiquing others. This study therefore focused on the following research questions:

**Question 1:** How have possibly my relationships with my mathematics teacher facilitated and restrained my learning as a student?

**Question 2:** How have I developed relationships with my students as a teacher?

**Question 3:** How do different approaches in teaching enable me to develop cordial relationships with students?

## Significance of the Study

The main notion of the research is for professional development in mathematics teaching and what sort of difficulties I have been facing. I have tried my best to incorporate them in this research.

My study investigates the teachers' beliefs concerning different forms of teacher-students relationship in mathematics teaching and learning. The usefulness of the study lies in its ability to verify conclusions, and extend the ambit of teachers' beliefs in the areas of learning and teaching mathematics. The study not only provided thematic descriptions of teachers' beliefs on relationship in mathematics classes but it also identified factors, both biographical and contextual, that have had an impact on their beliefs to create social distance(gap between teacher and students) in mathematics teaching.

"I have stepped out upon this platform, that I may see you and, that you may see me, and in the arrangement I have the best of the bargain" (Lincoln, 2008, p. 10). Well, my work is my pleasure. So, this study is more significant for me and as well to other readers and researchers. It is significant for me in the sense that I will provide me with an opportunity to reflect upon my lived experiences and can do self judgment of my latent knowledge and background knowledge of Mathematics and relationship with students in Mathematics classes. "Reflection is not just an individual, psychological process. It is an action oriented, historically – embedded, social and political frame, to locate oneself in the history of a situation, to participate in a social activity, and to take sides on issues. Moreover, the material on which reflection works is given to us socially and historically; through reflection and the action which it informs, we may transform the social relations which characterize our work and our working situation."

Similarly, Schwalbe (1996) whose fieldwork in the men's movement verged at times on auto-ethnography, observed:

> Reflecting on my reactions to their activities, in light of my own biography, also helped me to understand what the teacher and students were seeking and why. Every insight was both a doorway and a mirror a way to see into their experience and a way to look back at mine. (as cited in Anderson, 2006, p. 11)

I will be comparing my past relationship with teachers in mathematics classes with the current relationship. As a result, I will be more confident in stepping into the real world of learning and teaching. Moreover, this study is helpful to novice writers or researchers like me, who is all the time hanging around the conceptualized research world, but never tries to understand it in a practical way. This study will provide insight to readers and researchers that lived experiences are not just telling the story but also a gallery of knowledge, to study in order to know the secrets of nature and life, to educate oneself in order to grow in consciousness, to discipline oneself in order to become master of oneself, to overcome one's weaknesses, incapacities and ignorance, to prepare oneself to advance in life towards a goal that is nobler and vaster, more generous and more true. Finally, last but not least, my study has been significant to those academic areas such as schools, colleges and to different educational institutions arising insights that children / learners are not born with weak traits they are made and victimized by environment where they are living like me in the junior classes of my school days.

## Overview of the Chapters

The story began with a long journey from our place, Mirge, 8-Dolakha to my undergraduate university, Tribhuvan University, Kirtipur, Nepal and during my final

year as a Mathematics student in Master level of Mathematics Education from Kathmandu University, School of Education, Balkumari, Lalitpur.

**Chapter I**

This chapter tells my experiences in doing graduate research under the predict of the paradigm as well as my excitement working in the school, as though I am just a single step away from my dreams as a graduating student at Kathmandu University, Nepal. This is a scene setting chapter, where I write different narrative in the form of fiction, story, poem, and text SMS, etc. This is divided into three sections, including critical self-reflection and ideology critique in the form of relationship with teacher and student in mathematics teaching/learning process with research questions.

**Chapter II**

This chapter portrays my experiences with different literature reviews related to relationships in mathematics teaching/learning from different perspectives.

**Chapter III**

In this chapter, I am going to narrate my experiences in my method and methodology and paradigm in my project.

**Chapter IV**

Consisting of three sections, including my critical self-reflection and ideology critique, I storied my experiences of being a follower and implementer.

**Chapter V**

This chapter described my life's paradigm shifts from my old thinking generally about life and specifically about my educational research practices to relationships.

I storied my experiences of being a follower and implementer as being a teacher with different relationship with students as facilitator. This narrates my

gradual acceptance of my reality after those paradigm shifts and my courage to move on in life and the evolutionary re-conceptualization of my perspectives towards research and I tried to address my second research question in this chapter.

**Chapter VI**

This chapter tells the story of my lived experiences at Kathmandu University, School of Education. Contained in this chapter are my struggles in accepting new world views in educational research and my journey towards the dereliction of my old thinking in conducting research, including the roles of significant persons that shape my new understandings in relationship, where I address my third research question.

**Chapter VII**

When, I slowly engaged with Stephen Covey's books (1983; 2004) and various literatures, such as Kincheloe and Tobin (2009), Taylor (2012), Luitel (2009), I realized that transformation is never impossible with a will and a strategic plan.

This chapter depicts my envisioning plans/strategies towards understanding and implementation of new world views and how to make a good paradigm shift as we move forward towards academic excellence and a sustainable research program in our institution through cordial relationship. This chapter mainly deals with my difficulties, reflection and concludes my project raising many questions on self and others.

**Prologue: The Writer's Grief**

I end this short duration of life (research) as story with an account of my grief with different forms of relationship in mathematic teaching and learning because as I freed myself from the bondage of my old thinking, I learned to see how unjust I was before. But as the sun sets in the west, I believe that there is always another day that will rise again to start a new beginning…

## Chapter Summary

In this chapter, I travelled all around my educational life as student, novice teacher, novice teacher trainer and novice researcher thus outlining the research agendas. I have developed different sections (Chapter IV-VI) to address my three research questions in which I have listed different scenario. My first research question is based on myself as a learner form primary to master level. My second research question is based on my career as a novice mathematics teacher from my initial stage of career and my master study. My final research question is picked out from the curriculum agenda incorporating my en/vision from the lens of transformative learner and teacher to develop a cordial relationship with students in mathematics learning process.

# CHAPTER II

# LITERATURE REVIEW

## Chapter Overview

The literature review chapter opens with the thematic review of the related literature and ends with the conceptual framework of the study. In this chapter, I have made an attempt to review the related literature categorically in three levels: the thematic information, the theoretical reviews and the earlier related research work. To this end, I collected the contextual themes in the literature that I needed for the research, and explored the existing information on my topic areas. The collected authentic pieces of information about teachers and students' relationship and its impact on mathematics teaching support the findings and show the relation with the research themes.

The main purpose of the review of literature was to enhance the present level of personal understanding of the related concepts and practices governing level of relationship between teacher and students and its impact on mathematics teaching. For this, the total task has been performed from two perspectives – review of theoretical perspectives, and review of related studies. Accordingly, this chapter has been developed in two sections comprising of these two aspects respectively.

Further in literature review I provide the background and contexts for the research problems. Wiersma (1995) observed, "It establishes the need for the research and indicates that the writer is knowledgeable about the area" (p.406). It presents me for various ideas and opinions of the various renowned scholars on relationship between teacher and student in Mathematics teaching and elements of behaviors as a backup for the themes of the study.

## Relationships

Relationships, whether positive or negative in nature, I have proven to have profound effects on quality of life. I support Akiyama and Takahashi (2005) who state that well-being is directly tied to personal relationships. In a similar fashion, Vanzetti and Duck (1996) shared benefits to relationships, which include physical support, a sense of belonging, having a "sounding board" for emotional reactions and opinions to understand and support the need of teacher and students, being able to say what I really think, providing a reassurance of worth, opportunities to help, and validation and support for the way we do things and interpret experience (pp. 15-18). But, on the other hand, Lansford et al. (2005) reported that the lack of high quality relationships resulted in negative effects including depression, anxiety, and poor health in general in the student in my lived experience.

## Teacher-Student Relationships

With this basic understanding of the apparent necessity and importance of relationships in my mind, the following section will focus more specifically on the importance as well as impact of student-teacher relationships on mathematics learning. A request for what constitutes effective teaching will undoubtedly produces a long and varied list of responses. The list may include, but not be limited to, a teacher's knowledge of subject, pedagogical competence, instructional effectiveness, and/or classroom management skills. In the similar way, Banner and Cannon (1997) describe the difficulty in defining exactly what it means to be an effective teacher, "We think we know great teaching when we encounter it, yet we find it impossible to say precisely what has gone into making it great" (p. 3). The situation is further convoluted for me when considering whether teaching is an art or a science. As stated

by McEwan (2002), “An ample amount of research exists showing that content and caring are not exclusive commodities; effective teachers emphasize both...” (p. 6).

## Teacher Connections

One of the attributes that will undoubtedly make me most lists is a teacher’s ability to connect with students. It may be referred to as an ability to cultivate relationships or be more formally labeled as “nurturing pedagogy”. It may be defined as a mix of high expectations and caring support. Pianta (1994; 1999) defines student-teacher relationship as “Emotions-based experiences that emerge out of teachers’ on-going interactions with their students.” Similarly, Strahan and Layell (2006) noted the importance of “establishing a learner-centered environment that featured warm, supportive relationships with students” (p.153), a concept confirmed by Silins and Murray-Harvey (1995). McEwan (2002) presents the case quite eloquently stating, “Effective teachers appear to be those who are …‘Human’ in the fullest sense of the word. Their classrooms seem to reflect miniature enterprise operations in the sense that they are more open, spontaneous, and adaptable to change” (p.30).As Hargreaves (1994) apparently agrees:

> Good teaching is charged with positive emotion. It is not just a matter of knowing one’s subject, being efficient, having correct competencies, or learning all the right techniques. Good teachers are not just well oiled machines. They are emotional, passionate beings who connect with their students and fill their work and classes with pleasure, creativity, challenge and joy. (p. 835)

Liu (1997), when talking specifically about the impact of a multi-year experience in Nepali’s secondary schools from my experience also attests to the importance of the student-teacher relationship stating, “The close emotional bond

between teachers and students led students to recognize the school as a home away from home. The teachers' dedication to students' growth helped me to inspire students to meet the school's requirements in both academic and behavioral." According to Roeser, Midgley, and Urdan (1996), students who reported more positive teacher-students relationships also reported greater feelings of belonging, thus I felt more academically efficacious and less self-conscious. In the same vein, Koplow (2002) proposed that effective teacher-students relationships encourage greater confidence and classroom engagement in much the same manner as sensitive parenting encourages a greater sense of security and confidence.

**Student Voices in Relationships**

The overall importance of the student-teacher relationship is possibly best-voiced by the students themselves. Unfortunately, I found there were few studies to date that make use of the student voices to convey this important message. In my though the relationships were most generally "characterized by compassion, respect, personalization, fellowship, and friendship" (Doda & Knowles, 2008, p. 27). Doda and Knowles (2008) capture this notion through a student's response:

> The key to being a good teacher is to know the kids. You have to know every single one and have a relationship with every single one. I think that one thing that really allows me to work hard knows that my teacher knows where I am in life at that moment. If they don't know me, I will tend not to work as hard for them. (p. 28)

The most convincing quote came, "The teacher needs to be willing to have a relationship, and not just be assessing us. It makes a big difference if they take the time to understand how you are feeling, if they understand and connect".

## Importance of Student Teacher Relationships

In addition to the general sentiments which I expressed above, the importance of the student-teacher relationship has been brought to light in seminal studies and analyses. The Work Group of the Board of Educational, a Presidential Task Force, produced Learner-centered Psychological Principles: A Framework for School Reform and Redesign about learners and learning. Of these principles, the Social Influence on Learning stated, "Learning is influenced by social interactions, interpersonal relations, and communication with others." Similarly, McCombs and Whisler (1997) offered five premises for helping each learner develop to their fullest potential, which included "Learning occurs best in an environment that contains positive interpersonal relationships and interactions and in which the learner feels appreciated, acknowledged, respected, and admired." In Classroom Management that Works - Research-based Strategies for Every Teacher, Marzano (2003) presents the results of several meta-analyses centered on teacher effectiveness. The initial results indicated four general components of importance including: rules and procedures, disciplinary interventions, mental set, and teacher student relationships. The latter, though not the highest in terms of effect size, is suggested to be "the keystone for the other factors" (p. 41).

## Creating Success in the Classrooms

Student-teacher relationships have shown to me to be an important factor in student success in the classroom. Pianta (1994) attests that teacher student relationships are influential on students' success in school; and Lee (2007) found that the trust developed between the student and the teacher can contribute to students' academic performance. Noddings (1988; 1992) shared that students make learning a higher priority and thus work harder for teachers whom they care about and perceive

as also valuing their learning. Lyubomirsky, King, and Diener (2005) noted "Numerous successful outcomes, as well as behaviors paralleling success" (p. 803); and Birch and Ladd (1996; 1998) reported that the student-teacher relationship can influence students' future paths toward academic success and was positively linked with children's academic performance. Lastly, Miller (2000) found that the student-teacher relationships play an important role in helping reduce the chances of future bad outcomes, i.e. – dropping out of school. With this in mind, it should be of no surprise for me that caring, supportive teachers are often found in schools of high achievement. Silins and Murray-Harvey (1995) reported students who indicated high feelings of adequacy in their interactions with their teachers in academically successful schools; and Hughes (1999) found "teachers who identify and address individual student needs" in high achieving, rural schools. Positive outcomes from strong student-teacher relationships are not only confined to the realm of academics. Hamre and Pianta (2001) reported "the quality of teacher–child relationships is a stronger predictor of behavioral than of academic outcomes" (p. 634). Moreover, Howes, Hamilton, and Matheson (1994) reported that student-teacher relationships influence students' relationships with peers in their classrooms. Griggs, Gagnon, Huelsman, Kidder-Ashley, and Ballard (2009) summed this best stating, "student–teacher relationships matter (and) may reduce the risk of negative behavioral outcomes" (p. 562).

The importance of the teacher-students relationship for me also has been studied with regard to specific populations and cultures. To start with, different cultures put different degrees of importance on the student-teacher relationship. Jacob and Lefgren (2007) found that in high-poverty schools, teacher requests are based more on a teacher's ability to improve student achievement than on student

satisfaction, whereas in low-poverty schools the opposite was found to be true. Hudley, Daoudd, Hershberger, Wright-Castro, and Polanco (2003) revealed that individuals of different cultures, Latino and Angelo students, value different elements of the student-relationship and also act within the relationship differently based upon their perceived-level of satisfaction. Lastly, I found several studies looking specifically at mentor-mentee relationships in educational settings with high-risk youth (Rockwell, 1997; Spencer, 2006) as well as gifted youth (Irving, Moore, & Hamilton, 2003; Schatz, 1999) I found that positive relationships have similar benefits for students. The benefits included an increase in self-esteem and confidence, as well as improvement in studying skills and in the ability to use classroom knowledge.

## Characteristics of Student Teacher Relationships

From my lived educational experience, in efforts to better understand the student-teacher relationship, some studies have focused directly on some of the characteristics of the student-teacher relationship. Decades ago, Barr (1958) and later Good and Brophy (1995) identified teacher characteristics that students found to be most likable, including consideration, buoyancy, and patience which I too found in my teaching and learning process. Likewise, Boals et al. (1990) noted the importance of establishing high expectations when working with students of poverty. Jacobson (2000) found that the first step in creating this type of environment was getting to know each student, thus allowing the teacher a better chance of developing a positive rapport that can in turn facilitate and support the student's learning. Though these studies provide important insight, the imitations of these studies most notably include their inability to explain how these characteristics then affect students and ultimately the student-teacher relationship in my pedagogical practice.

## Theoretical Referents

Using the interpretive paradigm as a perspective on how I view my lived experiences, I will re-examine the underpinning beliefs I hold towards social distance of mathematics in classroom teaching and learning practices, for making my theoretical standpoint clear. I used some theories as my theoretical referents. With the help of some theories and literature I have tried to make my narratives clear. Those theories are discussed in brief below:

### Critical Theory

Critical theory assumes that there is a 'reality' that is apprehend able. This is a reality created and shaped by social, political, cultural, economic, ethnic and gender-based forces that have been reified or crystallized over time into social structures that are taken to be natural or real. People, including researchers, function under the assumption that for all practical purposes these structures are real. Critical theorists believe this assumption is inappropriate. Critical theoretical approaches tend to rely on dialogic methods; methods combining observation with approaches that foster conversation and reflection. Critical theorists usually do this by beginning with an assumption about what is good (e.g. autonomy, democracy) and asking people in a social group, culture or organization to reflect on and question their current experience with regard to the values identified (e.g. To what extent are they an autonomous ?) Critical theorists are not just trying to describe a situation from a particular vantage point or set of values (e.g. the need for greater autonomy or democracy in a particular setting), but that are trying to change the situation.

Furthermore, critical theory offers a multidisciplinary approach to society (School Culture) which combines perspectives drawn from political economy, sociology, cultural theory, philosophy, anthropology, and history. Thus, critical theory

can emancipate people from different disciplinary boundaries and it is concerned with creating societies free from dehumanizing policies and practices that perpetuate social injustice, cultural exclusion, social inequity, racism, sexism, ageism, scientism and many other forms of repression (Taylor, 2009). It is a meaning making process through reflexive voice of practitioners.

Being able to critically reflect on my own beliefs on relationship and practices engages me into the act of pedagogical thoughtfulness in the hopes that students, teachers and teacher educators will come to realize the importance of being reflective in one's own belief and practices. Therefore, in this self-inquiry, understanding the relationship of my constructivist belief and classroom practices plays a vital role in encouraging the readers to think about the educational issues underpinning their pedagogical practices. According to Brookfield (2000, p. 33), "critical reflection focuses on adult educators as inquirers into their own, and others' practice." Hence, engaging in this process will allow me to critically examine and ask questions about the classroom beliefs and practices that I was exposed to as a learner, as well as beliefs and practices which I may have promoted in my classroom as a mathematics learner, mathematics teacher and a teacher educator.

The notions of ideology critique and pragmatist constructivism are amongst the traditions emphasized in the process of critical reflection (Brookfield, 2000). The former allows me to challenge the dominant and hidden ideologies, beliefs and assumptions, such as the issues of language and traditional mathematics classroom practices, embedded in my culture as a learner and as a teacher. The latter emphasizes the role I play as I construct and deconstruct my experiences and meanings (Brookfield, 2000).

**Radical Constructivism**

Constructivism, though it began as a theory of learning, has been used as a framework of research to improve teaching practices, particularly those of science and math (von Glasersfield, 1995). This pedagogical framework has made an impact on education particularly on learning theories and teaching methods in science and mathematics (Treagust, Duit, & Fraser, 1996). A constructivist view of learning emphasizes that students construct their own knowledge using their own prior knowledge and experiences (Gunstone, 1995).

As a referent in doing this study, I shall embrace the four essential criteria to characterize my constructivist teaching practices to reduce social distance in teaching mathematics in classroom: eliciting prior knowledge, creating cognitive dissonance, application of the knowledge with feedback and reflection on learning. Using these criteria, I believe, allows me to recognize whether or not my pedagogical practices are worthwhile. As an interpretive researcher and writing as self-inquiry, the activities I will be involved in (forming research questions, making sense of my experiences, writing the research report) are framed. As I make sense of the beliefs I hold towards teaching and learning classroom practices I call on my lived experiences and the continuous learning process I engaged in while doing this self-study. In doing so, I will constantly ask myself whether the knowledge I produce is useful and viable in relationship with teacher and students as I try to find the answers to my questioning self.

According to Taylor (1996), the quality of knowledge I may produce in embracing this theoretical referent depends on: (1) my ability to sustain and resolve my perplexity, (2) the quality of my communicative relationships with others while trying to understand their understanding; and (3) my ability to engage in critical self-

reflective thinking about the quality of my knowledge construction process to reduce the social distance in class room teaching in mathematics.

**Variation Theory**

The foundation of variation theory is based on the concept that people become aware of a phenomenon through the way that it varies from its environment (external horizon) or the way in which its internal parts vary in relation to one another (internal horizon) (Booth, 1992, Marton et al., 1993, Marton & Booth, 1997). When considering the nature of variations, there are those that on the surface seem obvious and those that are highlighting significant details.

Variations help in identifying a phenomenon but there are also variations in the way that individuals recognize or are aware of a phenomenon. These variations in the ways in which people are aware of a phenomenon are used in a phenomenographic study to develop *categories of description.* It has been shown that there are a limited number of categories of description or ways in which people are aware of a phenomenon (Marton & Booth, 1997; Marton, 2000). These categories of description are usually placed in a hierarchy, where each higher layer incorporates or expands on the previous description. It is argued that learning occurs when a person becomes aware of a

> Variation theory has its roots in phenomenographic research which accounts for how the same things or same situation can be seen, experienced and understood in a number of qualitatively different ways. Some ways of experiencing are more powerful than others. So the way something is experienced is fundamental to learning. Variation theory seeks to account for differences in learning and describes the conditions necessary for learning. From a variation theory position, learning is defined as a way something is seen, experienced or understood. Central to this theoretical position is that the learner, in one way or the other, experiences that which is learned. Education aims at developing the learners' capability to handle various situations; to solve different problems and to act effectively according to one's purpose and the conditions of the situation.

phenomenon in a different way. *Variation theory* focuses on the way that a phenomenon is made visible in a teaching context (Marton & Tsui, 2003). Utilizing knowledge of the variations with respect to how the phenomenon stands out from other things in the environment and with respect to the phenomenon's internal structure, it is possible to focus on the aspects that will help build the desired level of understanding. Marton et al. (2003) have defined the patterns of variations that are considered to be significant:

**Contrast:** "in order to experience something, a person must experience something else to compare it with" (p.16). This may be a way of identifying critical aspects of the phenomenon with respect to other phenomena.

**Generalization** is required with respect to the object of learning (p.16). It isn't enough simply to see the object; we need to see variations in the use of the object to fully comprehend it. This involves recognizing that some features are not critical to the identification of that phenomenon.

**Separation** of an aspect from other aspects is required. The object needs to be looked at from different angles. The aspect being examined "must vary while other aspects remain invariant" (p.16).

**Fusion** is where "several critical aspects" need to be considered together. Those aspects must be experienced simultaneously" (p.16).

**Transformative Learning**

Transformation comes from understanding the system of profound knowledge (Daszko & Sheinberg, 2005). The transformed individual perceives new meaning to his/her life, to events, to numbers, to interactions between people. Once the individual understands the system of profound knowledge, he/she will apply its principles in every kind of relationship with other people. Transformation is not for the other

person to do, but for every individual to take personal responsibility to help create new futures, to ask questions, to take risks, and to make a difference. According to Daszko and Sheinberg (2005), transformation occurs when people create a vision for transformation and a system to continually question and challenge beliefs, assumptions, patterns, habits and paradigms with an aim of continually developing and applying management theory, through the lens of the system of profound knowledge. In my research, I'll use this learning theory to reduce the distance between teachers and students in Mathematics class.

## Chapter Summary

In this chapter, I reviewed different literatures related to my research issues. I went through different literatures regarding socio-cultural dimension on relationship of students and teachers, its impact on teaching/learning of mathematics. Similarly, I went through the literatures concerning school mathematics pedagogy and educational programs and policies.

# CHAPTER III

# RESEARCH METHODOLOGY

## Chapter Overview

This chapter gives an overall framework of my research. More particularly, I have tried to show my journey of research as research methodology in this chapter. This chapter presents my research methodology, research method, quality standards of my research, my ontology, epistemology, axiology, ethical issues, and different theoretical referents together with data sources of my research.

## Introducing Auto-Ethnography

It is auto-ethnography that enters into my own lived experience as a mathematics learner and teacher in terms of creating social distance (gap between teachers and students) in mathematics learning. Auto-ethnography comprises three words- auto, ethno and graphy which signify the textual representations of one's personal experiences in his/her cultural contexts (Luitel, 2009, p. 35). Auto-ethnography provides opportunities to the development of learner and teacher as well to understand the very possibility of the method that arises from the embodied nature of researcher's lived experiences (rich experience). An auto-ethnographic methodology that centers on my own lived experiences as a learner of mathematics and as a classroom teacher of mathematics will be adopted as a framework to answer my research questions. Creswell (2008, p. 475) defines auto-ethnography as "a reflective self-examination by an individual set within his or her cultural setting (context). According to Ellis (2004, p. 37), it "refers to writing about the personal and its relationship to culture. It is an autobiographical genre of writing and research that

displays multiple layers of consciousness." Using auto-ethnography, therefore, allows me to critically reconstruct and deconstruct my held beliefs that will define the real meaning of my lived experiences. My approach to auto-ethnography in this research design focuses on investigating my lived experiences of teaching and learning as both child and adult (Afonso & Taylor, 2009). However, according to Taylor, "auto-ethnography is not simply an autobiographical study of idiosyncratic self who has been separated out somehow from her own culture..." (as cited in Afonso & Taylor, 2009, p. 4). It will help me understand how I may explore my culture which may have always influenced the belief I hold towards high level of bad/good relationship with teacher and student in teaching and learning mathematics in the classroom.

An auto-ethnography, perhaps, seems to be one of the appropriate methods to study my own practice since I am the primary source of the auto-ethnographic data. This auto-ethnographic research is also a very much useful tool for improvement of my personal and professional practice. The notion of the dialectic becomes important only within a commitment to emancipation, one that seeks to liberate in subjective and objective terms.

## Epistemological Consideration

The notion of epistemological consideration is the very basis of knowledge, its nature and forms, how it can be acquired and how it can be communicated to other human beings. I have tried to use stories and poems writing of my experiences as a mathematics learner/teacher and tried to reflect it critically about my own learning experiences to unfold relationship between teachers and students.

## Ontological Consideration

The notion of reality about this research may not be single. Different learning and teaching strategies are my assumptions (constraints). Ontology of change/motion

rather than ontology of rest/statics is my preference thus my assumption of reality is related to science. Ontological assumptions concern the very nature or essence of the social phenomena being investigated.

**Research approach: Writing as Inquiry**

In an effort to relate my lived experiences as a learner of mathematics and a classroom teacher of mathematics, I believed that a narrative inquiry was the appropriate method to be used in this study. Stories and conversations had been my way of unfolding and finding meaning in my lived experiences asserted that a narrative research design "focuses on studying a single person, gathering data through collection of stories, reporting individual experiences, and discussing the meaning of those experiences for the individual." Using narrative inquiry in this study allowed me to reflect on my own pedagogical experiences and uncover the construction and reconstruction of my personal and social stories in a more meaningful way.

> Stories that create the effect of reality, showing characters embedded in the complexities of lived moments of struggle, resisting the intrusions of chaos, disconnections, fragmentation, marginalization, and incoherence of life's unity in the face of unexpected blows of fate that call one's meaning and values into question.
>
> **Ellis et al. (2000, p. 745)**

**Data Sources: Personal Reflections**

This research is an auto-ethnography. So I am the primary source of the data. My data are narratives, diary, reflections, different historical images, story and some semi-factual writings and pictures. I engaged myself in critical reflection about the meaning of my past, present and future possible experiences as I came face to face with what truly are my beliefs and assumptions towards relationship between teachers

and students in teaching and learning practices in mathematics in classroom and improvement in my teaching praxis.

## Critical Research Paradigm

Ontological, epistemological and methodological considerations of critical research paradigm are ‘historical realism’, ‘transactional and subjectivist’ and ‘dialogic and dialectical’ (Guba & Lincoln, 1989). The present contour of reality is taken as the transactional and subjective. The main role of a critical researcher (for me) is to be a change agent of society and in my field where I’m being engaged. Positivistic paradigm offers no space for articulating the researcher's unfolding 'self' during the research process. So, I have chosen critical research paradigm as my research paradigm. The paradigm of criticalism uses a transformative ontology of critical selfhood and enables me to critically examine assumptions, values and beliefs invisibly embedded in my thinking and action in relationship between teachers and students.

## Interpretivism

I used interpretivism as a supportive research paradigm. It has emerged in the social sciences to break out the constraints imposed by positivism. Interpretivism, as Taylor, Settelmaier, and Luitel (2009) claim, “is concerned primarily with generating context-based understanding of people’s thoughts, beliefs, values, and associated social actions.” As an interpretive researcher, I have attempted to seek for clarification, understanding, and extrapolation to similar situations of the status of reflective writings in my research.

## Post Modernism

This paradigm assisted me in offering my voice with my beliefs about constructivism as a new method (in our context) to improve my pedagogical practices

and increase students' ability to use their experiences and discover the world according to their own beliefs. Post-modernism in qualitative research exists from the literary criticism which applies skepticism and conscience as platforms of inquiry (Taylor, 2009). Taylor further advocates that post modernism elicits both fear and favor via its basic principle, be suspicious of all grand narratives (including that of postmodernism, respond to its critics, not without irony). The postmodern paradigm I employed as an influential paradigm to facilitate my research as reflecting, multi-perspective thinking, and voicing. This paradigm enabled me to use different irony and metaphorical logic in all of my chapters such as pain feeler, pain giver, pain killer and pain healer which helped me to reflect multiple voices as learner, teacher, and researcher.

Believing in the pluralistic and holistic notions of post modernity, I was enabled to use multiple curriculum images in my curriculum chapter thereby offering critical voices, envisioning and imagination. Barone (2006) uses post-modernism to understand the manner of the social world and there being no clear truth of the knowledge since it is something subjective which differs among individuals. This paradigm helped me to develop the multiple realities, multiple ways of knowing, being and valuing the world thereby offering me to change my deep seated traditional knowledge transmitting practice into knowledge generating or constructing ways of knowing. I explored my own hegemonic practice of teaching under traditional paradigm through my autographical reflection which helped me to connect my prior experience with culture (Afonso & Taylor, 2009) thereby helping me to seek multiple response to the question, who is the self that teaches? (Luitel et al. 2009). I have used poetic, narrative and metaphorical logics to embrace epistemic pluralism (Gautam, 2011) to situate myself in postmodernist inquirer.

## Quality Standards

To represent the quality standards of my research, I suggest (reader) that the rigor of this narrative inquiry be judged and evaluated on the following criteria:

### Verisimilitude

The degree by which the reader can tell how true and realistic the stories I am unfolding is defined by this quality standard. Using my own experiences as primary data in this study challenges me with the degree of connectedness I may evoke with the readers. Self-study, according to Bullough and Pinnegar (2001), should ring true and enable connections. Therefore, the need to provide vivid descriptions of my own experiences and detailed information of the places and people involved in my stories and conversations is highly essential.

### Transferability

According to Bryman (2004), transferability is how the research findings are applicable and similar to others across educational settings. Hence, in this research, using stories and conversations I have taken the readers – which could be pre-service teachers, in-service teachers, teacher educators or even researchers – as I recount the lived experiences that I have had in my teaching praxis – to the experiences which they can identify and assimilate with. However, in order for me to establish transferability in this self-inquiry, I should be able to provide extensive and careful descriptions of the time, the place, the context, and the culture which bring my experiences together and weave these into narratives that invoke the reader's pedagogical thoughtfulness . That is, to engage the readers, my stories should be able to establish a degree of similarities between my situations and theirs.

**Pedagogical Thoughtfulness**

Another quality standard of my research was pedagogical thoughtfulness which "arises from phenomenological-hermeneutical traditions and addresses the extent to which present and futurereaders of my text are evoked to question, reflect and examine their own pedagogical practices" (Van Manan, 1991, as cited in Luitel, 2009, p. 54). I hope that this quality standard brings evocative, perspectival and dialogic texts: How often this research engaged my readers including the perspectives and reflections of readers on the issues of relationship with teacher-students?

**Critical Reflexivity**

Being able to critically reflect on my own beliefs and practices engages me in the act of pedagogical thoughtfulness in the hope that students, teachers and teacher educators will come to realize the importance of being reflective in one's own belief and practices. Therefore in this self-inquiry, understanding the relationship of my constructivist belief and classroom practices plays a vital role in encouraging the readers to think about the educational issues underpinning their pedagogical practices. According to Brookfield (2000, p. 33), "critical reflection focuses on adult educators as inquirers into their own, and others, practice." Hence, engaging in this process will allow me to critically examine and ask questions about the classroom beliefs and practices that I was exposed to as a learner, as well as beliefs and practices which I may have promoted in my classroom as a teacher and a teacher educator. The notions of ideology critique and pragmatist constructivism are amongst the traditions emphasized in the process of critical reflection. The former allows me to challenge the dominant and hidden ideologies, beliefs and assumptions, such as the issues of language and traditional science classroom practices, embedded in my culture as a

learner and as a teacher. The latter emphasizes the role I play as I construct and deconstruct my experiences and meanings.

## Ethical Considerations

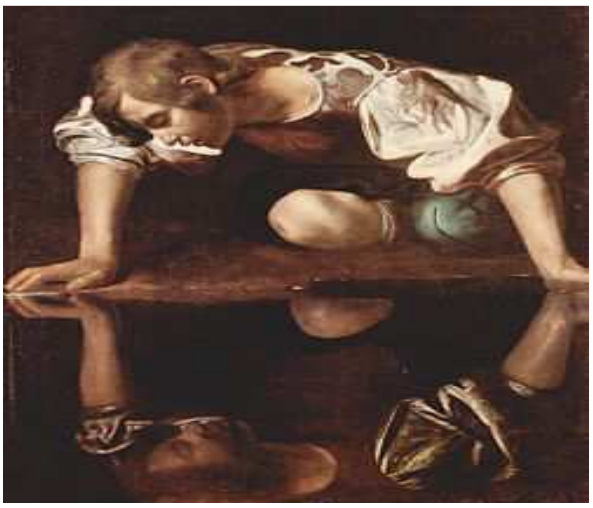
Anderson (1998) emphasizes that all studies which involve people should consider ethical issues and responsibility of the individual researcher to see to it that any risk which may affect the community or the individual involved in the study is minimized. Ethical issues in educational research, according to Burns (2000), may come from various sources. They can be from be the nature of the study itself, the procedures to be adopted, the methods that will be used to collect the data, the type of data to be collected, what is done with the data and how these all data will be presented. Researchers should also be aware that each stage of the research sequence may be a potential source of ethical problems (Cohen, et al. 2000). Therefore, in this research, I shall be aware of the ethical responsibilities involved in this research. As researchers, according to Denzin (1997), "ethnographers should operate under an ethic of care, solidarity, community, mutuality, and civic transformation" (as cited in Ellis, 2004, p. 149). Doing self-studies in education may reveal the problems and issues that make someone an educator (Bullough & Pinnegar, 2001).

In an attempt to investigate the sources of my held beliefs towards social distance in mathematics teaching and learning practices, we may have to examine and contest the curriculum and programs offered by my institution. In doing so, sensitive issues may be revealed and confronted. Yet, I claim the full responsibility for whatever I write and disclose. On the other hand, Josselson (2007, p. 537) asserts that "narrative researchers have an ethical duty to protect the privacy and dignity of those whose lives we study to contribute to knowledge in our scholarly fields." Hence, in this study, I shall take extra effort to ensure that the anonymity and privacy of these

individuals are upheld. This shall be done in order to maintain the confidentiality and privacy throughout the research (Josselson, 2007). In writing my negative experiences, I may have to change some details around, such as the names of the people, places and institutions. I also concede that in trying to examine my beliefs and understanding of my realities places me at a risk of being subjective. For example, I may choose to reveal only those experiences which have relevance and meaning in study. I am also aware that retelling my personal stories and exposing my beliefs can also be the source of my professional growth (Ellis & Bochner, 2000).

I shall also consider the integrity of this self-study to be of high importance. I shall try to be unbiased, accurate and honest as I try to narrate my lived experiences. Allowing my stories and conversations to be read by my colleagues will be considered so as to add to the credibility and authenticity of this study. Doing this also gives me the opportunity to acquire their views, suggestions and truthfulness of the situation presented. Their suggestions shall be properly noted and will be incorporated wherever possible and necessary. All the individuals and institutions which have been involved in this self-study are properly acknowledged.

**Threats to Quality Standards**



The main threat to my quality standards is to address Narcissism (Self – Loving). According to Pianta (1994), narcissism is a term with a wide range of meanings, depending on whether it is used to describe a central concept of psychoanalytic theory, a mental illness, a social or cultural problem, or simply a personality trait. Except in the sense of primary narcissism or healthy self-love, "narcissism" usually is used to describe some kind of problem in a person or group's relationships with self and other.

## Chapter Summary

This chapter focused on selecting of my qualitative research paradigm, I used multiple paradigms in my research design where interpretivism helped me to explore my lived experience of my pedagogical practices as learner, teacher and novice researcher. Criticalism enabled me to reflect emerging issues critically finger point to self and other. Post modernism supported me to view my process from multiple perspectives.

I have used critical/auto-ethnnography to embrace the notion of multiple paradigms which helped me to identify and examine my lived experience enabling me as a transformative learner. I also have mentioned different logics and genres as method in my inquiry. I used four quality standards; verisimilitude, critical reflexivity, pedagogical thoughtfulness, and transferability to ensure the qualities under different paradigms.

# CHAPTER IV

# RELATIONSHIP WITH MY FACILITATOR AS A STUDENT

## Chapter Overview

This chapter deals with my beliefs in the learning journey of mathematics as a student. In this chapter, I am going to deal with my different possible relationships with my mathematics coach/teacher/facilitator, how s/he facilitated and restrained me from learning as a student. Thus, I think it is very important to explain my physical, cultural, family situations and school culture before explaining any factors which influence and restrained my learning and relationship with my teacher. I have passed different stages of life studying mathematics in my cultural contexts. While I was passing my different stages of life, I was suffering from different problems. In this section, I would like to present my lived experiences ranking from home to university taking into consideration how I was treated as a mathematics learner in different situations. Furthermore, in this chapter, I have recollected the nodal moments of my learning experiences as a learner that inspired cordial relationships with teachers and students

***Relation between Teacher and Students***

*Relation Between Teacher And Student Is Like,*
*The Relation Between Potter And His Pot,*
*Like Them Teachers Also,*
*To Their Student, Loves A Lot.*

*Potter Jumps On The Clay For Benefit Of It,*
*Teachers Also Beat Their Students,*
*For Their Creativity To Lit.*

*Then Potter, To Clay, Give A Shape,*
*Teachers Also Give Their Students*
*Life Shape But It Required,*
*Good Co-ordination Between Them Not The Measuring Tape.*

*Then The Pots And Students,*
*Are Ready To Go To Market For Sale,*
*But If They Forget Their Teachers,*
*For Me, In Their Life, They Fail……..*

***(Diary, 2012)***

in mathematics learning process in the classroom. Thus, I am going to explore different influencing factors in teacher-students relationship.

**My Childhood: Forming Relationships as a Socializing Process**

*It was April 1986; I was born as the second child of my parents at the village of Majuwa in Mirge VDC, Ward No. 8, Dolakha, Nepal. My childhood seem to be very much interesting as I spent most of my childhood period enjoying different games and activities with my brother and cousin sister. My father has his own business which deals in kitchen materials like pot, steel glass, etc. We spent time with our own games playing in groups that helped shaped my mathematical knowledge from the very beginning with my brother and others who came with us to join the game.*

*I had performed my mathematics with different playing groups of my society with cold, warm and cordial relationship. My father is a literate person (as he completed up to five grades in the school level) but my mother did not attend the school. Nevertheless, she can read and write at her capacity.*

*In my childhood, I always tried to be closer with my father but I felt un/easy to talk with my father as when I asked about any new thing he could easily fulfill my desire. Moreover, he always helped me in learning, how much I can remember his dialogue "read and read, keep on reading" so that you will achieve new ways of learning. I was very much inspired by my father as well as by my family members. They inspired me to learn and rendered me full support.*

*In my childhood when I was about 6 years – 10 years, I think I was having cordial relationship with all around me so I felt free/easy to learn new concepts in a short duration with my family members and even in school culture, my teacher encouraged me to learn mathematics in a better and systematic way.*

**Relationship Matters**

*It can be any day in December 1995; I went to my neighbor Ramesh's home and heard that he was talking with his mother about the behavior of his mathematics teacher. I paused there for a while and overheard his discussion before that I saw his different creations in mathematics learning. After a while, I returned home and started talking with my mother and shared the previous happening. She told me "you are not able to analyze and are too young/small." She also told me to focus on study rather play different games with friends. In the evening, my father returned home and I asked him same questions. However, he promised and suggested to respect and to love the elder and younger. From that day onwards, I started respecting and loving. On the next day, my father taught me about counting number system by using pieces of stone in a better ways. He used the piloted voice, so that I could learn mathematics in interesting ways. I was excited to show my ability to my brother and sister. My brother and sister always encouraged me for those kinds of activities. I learned different kinds of mathematics being engaged in different kinds of work and playing games at home within my family, sometimes with my friends, brother and sister in good relationship.*

*An ideal student achieves success in life by using time properly. An ideal student hardly forgets about the value of time and does not waste time carelessly. He/she builds up his body and mind within the limited span of time in the educational institution. An ideal student does not put off any piece of work till tomorrow which he can do today. An ideal student never neglects his studies and is never unmindful of the lessons imparted to him/her by his teachers. An ideal student is attentive to his studies. He comes to his/her class in time and never intends to miss the lessons.*

**My Journey as a Mathematics Student**

*It can be any day in 1993 A.D., I joined at the village school named Shree Kalidhunaga Primary School. It was located in Mirge VDC, ward number 7 in Dolakha district. In each classroom, we were nearly forty students and more than 30% students were from other community (Tamang, Sherpa) who were not much interactive in our community. However, I used to learn many things from their culture to promote better relationship.*

*Most of my teachers in the primary school had completed their S.L.C level only. So I experienced the gap (my teachers were unable to deliver mathematics properly because of the emphasis of our curriculum on content?)*

*Now, I do remember how I practiced addition and subtraction of numbers during that time. And I also do remember different set up in different locations during different social events. A game is also very much important for every child to have a better relationship with teachers and students. From the game, a student can learn mathematical concept easily. I can remember that I learned multiplication table more with rubber game than from my school teaching and learning activities. Our teachers made us practice copy and paste like activities.*

*However, I never developed the clarity of concept of mathematical problems during my student life of learning mathematics which was full of anxieties. Rote memorization was the main measure of learning during my school day.*

Relationship is primarily composed of episodically stored understanding derived from personal experience, episodes or events which continually shape one's

understanding of events at a later time (Abelson, 1979). Teacher's experiences as students are sources of most beliefs about school which lead to some formed notions about teacher's role and abilities, the nature of knowledge, and nature of learning (Yero, 2002). In this journey of exploring my different form of relationship in Mathematics learning as a student, I begin this journey with a glance of the past, my experiences being a learner. I believe that if I fail to spell out the beliefs on my relationship that may have indirectly and intangibly governed my thinking and action, which will persistently seep into my whole system and be diffused into my learning. Pajares (1992) explains that beliefs take shape early and are likely to self perpetuate, unrelenting even against contradiction brought about by reason, time, schooling, and experience. It is for this reason that I want to break the seemingly resilient cycle of transmission or will penetrate into my students mind. It is my hope that my own transformation will kindle the same transformation on my students' and other teachers' thinking.

**One Idiom**

*It was a year 2002, just a year ago; it was a very pitiful and poor student life of mine. I felt, I was the successful student of class X. Those days I felt very proud to say that I was the student of class X. Actually nowadays I believe the statements "try try until you get success", "practice makes a man perfect". These are the very true adages for me. The word 'practice' is very precious for me because it has changed my life as I wanted. I think you want to know what had happened in these last years of schooling, let me tell you.*

*Before 1 year, I used to bend my head down in Math subject whenever my math teacher entered the class room because I was very poor in math at that time. I was totally blank what to do? I had good command over other subject but I didn't*

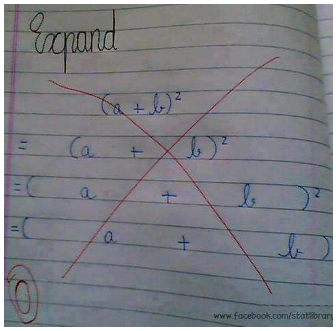
*know why I did seem poor in this subject? I used to think that our Math teacher Mr. T… was the worst teacher in this world, who only knew how to punish students while they were confused to answer. He never thought what should be the relationship with students in mathematics classroom.*

*I was the third student in my class but I used to get very poor marks in math. My performance in other subjects was also low. I used to get scared to ask any questions to Mr. T…, because his appearance was quite scary. I used to pray to god by saying not to send him as a mathematics teacher. But it didn't just happen each and every time. For the beginning of that 5th month, it was too hard for me to understand Mathematic, and then suddenly I got good news that Mr. T… had left our school. After that my good days started because we were going to have another new Math teacher, yes! It was his first day and he entered our classroom and introduced himself "hello! Everyone, I am Mr. Lamichhane". Some of us teased him by saying Lamichhane ba! But I ignored them because I just wanted to know his teaching style. We also introduced us one by one, I can remember his first question –"how many of you are talented in Mathematics?", and then I got scared of the question asked by that young teacher. I got scared if he*

*To compare and contrast between the situation of the children of public and private schools/colleges including rural and urban schools of Nepal in Mathematics classroom, as a student of rural area in my student life, a large number of students in the same class (which was hard to control and run class on desire plan), students lived together in classroom, irregular, weak in subject matter, they didn't do the assignments regularly, frustrated from their parents or families or society, lack of interest in study, and those students who have anger, depression and anxiety, usually like to stay at the last bench of the class and don't think the importance of education in future and lack of sufficient teaching material students get hard to understand the new concept. The most important thing was I realized that the toppers of public school are really topper in all areas but in private school the topper couldn't do better in future. The student of private school need helps from other always but in Public school student manages all by himself/herself.*

*asked me to solve any problem as I was the third student (one of the so called talented) of the class. I could not dare to raise my hand. After an hour I noticed him as a good teacher because he was asking us questions but not related with the subject, it was totally out of topic. I can say that now why he had done that? He just wanted to know our behavior. I thought to tell him my problem but I could not because I really didn't want to embarrass myself in front of all students and that new teacher.*

**Was Mr. Lamichhane Good facilitator?**




Source: https://www.facebook.com/WeAreTeachers

*The following day he started teaching us. At first, he gave some problems to solve, which were totally out of my knowledge. After 1 month he noticed me and asked about me what my actual problem for his subject was. I told him everything because it was very good time to explain to him about my problems. First he asked me what my learning method was; I didn't get him properly so that I told him nothing. After a few months, I was going to have my second terminal examination and I was totally blank how to prepare this subject. For some time, I thought to take tuition but there was the same condition like Mr. T…. I personally did request my new teacher to help me but he encouraged me to do myself, again I didn't get him. I used to be confused why he always used to tell some adages. I asked him how I could learn myself. Then he asked me one question - "Who teaches birds to fly in the sky?"I replied no one they try themselves to fly by the help of their wings and they get success, and then he said– "birds don't have mind like us but they learn how to fly in the sky without teacher, but you have a great god gifted mind. So, you should try to learn yourself and fly little bit up, you will find me just for support."*

*That sentence touched my heart and I started practicing that day onwards. I started seeing my ideal person in him. There arose a huge desire to be like Mr. Lamichhane. His teaching way was very smooth; those who didn't pay attention before started listening to him carefully and he slowly won the hearts of all student. Whenever I got any problem I used to ask him for that and as usual he used to help me. I slowly knew that I had lost my base on this subject. He gave me one book for more practice and told me to complete that. He also told me not to give up until I solved that problem twice or more times. Then, math became a game for me.*

*In the examination, I found huge changes in that subject. I passed mathematic with good marks. There were no bounds of my happiness. Changes could be noticed very clearly, I learnt that mathematic was all about practice with fun.*

*He has his own words for Math that is "I am not here to teach, I am here to share." Nowadays I am nearing the end of schooling in Nepal, I solve my problem without the help of anyone. It gives me joy. Once upon a time, mathematics used to be a very hardest subject for me but now it has became my most favorite subject because I know now practice makes a man perfect. He proves that teachers can divert any situation and can change perceptions of students if*

**Teacher Says, Teacher Goes**

Teacher says,
teacher goes,
teacher smiles,
teacher knows!

What you have done,
was clearly a mistake,
maybe it is,
time for a break.

Teacher says,
teacher goes,
teacher smiles,
teacher knows!

That you have been naughty,
That you have been quite doughty,
That you are being rude,
don't call teacher a dude.

Teacher says,
teacher goes,
teacher smiles,
teacher knows!

That you were making faces,
behind teachers back,
that you were throwing spitballs,
at the teacher's pet.

Teacher says,
teacher goes,
teacher smiles,
teacher knows!

So enough is said,
so now you know,
that whatever you do.....

Teacher says,
Teacher goes,
Teacher smiles,
Teacher knows!

*they try. I am an example of one of them. I want to be like him, I want to be a teacher in future to serve with my quality like him and want to earn respect and fame like him. That adage which he had told me was a great mystery for me that changed my view on study. I never can forget what he has said to me.*

*Now I have confidence to overpower anyone in this subject, I have a huge dedication to this. If we got our every teacher like him, all students can easily understand all subjects. It depends on teacher to create the learning environment. We used to wait for his class because we knew understanding is better than memorizing for life. He used his skills to teach different chapters in his ways. He also beat us but we never minded because that was full of interested. He could present himself as a friendly teacher or as a strict teacher according to the situations. I want the same personality in me to handle such situations in future. He used to share even small things with us even though they were the topics of another subject. He changed our mind, learning to understanding, writing to practice and to get success. That's why; I look him as an ideal teacher.*

*I believe that if teachers identify the problem of each student, they can definitely change the environment for that student. The relation between him and us was like athletics and speed because we believed in speed, we could be the best of the best who have a great speed to command any problem. He did not focus only securing 100 marks; he wanted 15 students securing 80 marks. I am walking on his path to meet my destination, because heroes always use to be a hero and ideal always has the best quality.*

*So, the way of his dealing was the best, the way of his teaching was the best so that we could understand him very best. One day, I will also earn same thing which he*

*has and become the best teacher in this world and prove myself that good image reflects brightly even in darkness….*

**Transmission of Knowledge from Head to Head: "Is That Learning?"**

*It could be any day of my schooling in grade X. It was the fourth period of the day, we were practicing mensuration in compulsory mathematics. The day before, our sir had given us some formula about cylinder. He entered our classroom after a while.*

*Sir: (taking a book form a student of the first bench) Turn your book at page 40.Ram! What is the formula of finding the volume of a cylinder?*

*Ram: Sir, it is* $\pi r^2 h$.

*Sir: Sita! Now you tell me what is the formula of finding its total surface area and curved surface area of cylinder?*

*Sila: Sir! I have not read formula well.*

*Sir: (Showing anger himself) If then when will you read formula? After SLC exam? (Sir reaches her bench and gives a slap on her back)*

*Ramesh: Sir! What actually is this* $\pi$*? Why is its value always 22/7?*

*Sir: This is a notation and it is universally accepted that its value is 22/7.By the way it's not your business to think about Pi. You are not asked to explain Pi in examination so your work is to complete this exercise and to be familiar with important questions.*

*(Teacher asks some formulae to other friends and writes on the board "there will be 6 marks of question in SLC from this exercise".)*

*Sir: Now look at number 5.*

*Here, curved surface area (C. S.A.)=* $308 cm^2$

*Radius (r) = height (h)*

*Volume (V) =?*

*We know that,*

*C.S.A. of cylinder = $2\pi rh$*

*or, $308=2\pi rh$*

*So, $r=7cm=h$*

*We know that,*

*Volume of the cylinder = $\pi r^2 h$*

*= $1078cm^3$ //*

*(Sir takes his seat. Everyone copies solution to the question line-by-line form the blackboard)*

*Sir: Finished? (Students nod their heads). Now look at question number 4. (He does the problem thoroughly on the board and asks us to copy the solution).*

*Me: (After copying solution form the board I quickly checked the answer from the book it was not correct). Sir! Answer is incorrect. (Other many students also checked form answer key given in the book and told yes sir! This is incorrect).*

*Sir: Wait! I will check my solution. (He checks his solution thoroughly but he found no mistake in his solution). The answer or question may be wrong. So leave this number and you need to do from 1 to 15. Number 5, 8, 11 and 15 are very important from examination point of view.*

*(We all marked the important numbers in our book. The bell goes.)*

Here, I have tried to portray how our mathematics classroom practice was dependent on textbook and transmission of knowledge rather than creation. In my experience, throughout my elementary school life we took our textbook as main source of guidance for our practice. It was reference for teachers to teach in the classroom and for students to use this book as the main source of practice. However,

in grade ten, we used to use some extra practice books and other reference materials too. In the college level, textbooks used to be the main source of learning material for me. In my view, learning mathematics or doing mathematics are different. As a student, my perception was the same about mathematics learning or doing. Teachers also view mathematics teaching as to finish the prescribed syllabus in time. We also determine ourselves at the level of satisfaction if we are able to do the problems form the book. For learning mathematics, Lax (1999) writes: good teachers, at any level, rarely follow a textbook faithfully, even if they have authored it. Here my concern is not to explore whether use of text book in the classroom was good or bad; my concern is to explore how textbook in the classroom practice was directing our practices towards exam oriented learning. It was/is our culture that how good we were in mathematics used to be dependent on that how far we have reached in our text book. Textbooks are "designed to provide an authoritative pedagogic version of an area of knowledge" (Stray, 1994, p. 2). According to (Selander & Skjelbred, 2004):

> One could recognize the ideas of behaviorism in a book that focuses on getting the right answers on well-defined questions. From a constructivist and socio-cultural perspective, it would be more important to start from the students own experiences and create problems that nurture discussions and cooperation. (as cited in Johansson, 2006, p.27)

I did not know whether our text book was/is in/sufficient to address the needs of curriculum? I did not know how curriculum and textbook were designed according to the needs or interest of teachers or students or society. Supporting the view of Smith that authority is the textbook from when "the answers to all mathematical problems are known and found" (Smith, 1996, pp. 390-391). Viewing from this

perspective, it can be said that our mathematics books just gives a straight way to what is needed to practice to attain the desire product.

Analyzing and constructing my pedagogical practices as student throughout my journey, I think probably most (if not all) of my learning journey was oriented to drilling mathematical problems from text book and to be prepared for examination to achieve a label of pass or fail through paper pencil test.

**Learning in a New Scenario**

*It can be any day of Feb. 2011. I successfully completed all the rules to be a student of a renowned University of Nepal in 2011 Feb batch hoping to do the best. I found that there were many struggles to face for good achievement and I couldn't be perfect without getting the knowledge of the subject matter in new and alternative ways of learning since I was a non-B.Ed. student so I felt uneasy at the beginning but I hoped I would be familiar in subject matter soon by learning and doing activities. I really found that this renowned university is my best choice to upgrade my progress. I am trying to get good command by improving my skill in English language which is a mandatory language in this university.*

*I have been a teacher of mathematics at the secondary level as well as a master level student on the other hand. I have realized that students who are entering lower and secondary school education have many problems with mathematics learning. One of the aspects I have experienced, for example, was that, the approaches to teaching and learning of mathematics have been changed significantly in the last few years. Challenges posed by declining interests of students in mathematics are multifaceted and indeed, are of the domain of pedagogical discussion. Researches in mathematics learning have shown that the creative teaching learning strategies are the sources of intrinsic motivation towards learning of*

*mathematics. Many teachers feel inadequate in mathematics education and are unable to give children the skills that are needed to succeed in upper primary school and at secondary level. Yet mathematics is essential for success in scientific and technical education. Unless the foundations are secured, it will be extremely difficult to build mathematical and scientific bases at the secondary level.*

*As a result, they commonly express a fear or anxiety of mathematics. Teaching mathematics, therefore, remains problematic because it requires knowledgeable and competent teachers. Due to teachers' poor mathematical backgrounds, many abstract concepts and formulas are introduced without paying much attention to aspects such as logic, reasoning, and understanding. This causes many of the students to think that mathematics is very difficult to learn. Where, for example, students in Nepal are often passive throughout the mathematics lessons; 'chalk and talk' is the preferred teaching style; emphasis is always made on factual knowledge and questions which require only single word answers, and often answered in chorus. Consequently, learning for conceptual understanding is inhibited.*

*Somehow, I'm on the way to address the above issue, and challenge after becoming the student of this university. The learning should be contextual, related to the problems of real life. Learners should feel that I also have important role in the learning situation. One should not feel that they are being imposed by somebody else. In fact, leaning mathematics should be taken as a continuous process of life to construct new ideas from the interaction with the environment. Mathematics activities, opportunities, tools and environments are provided to encourage learners' self-analysis, regulation, reflection and awareness. Mathematics knowledge construction should be emphasized rather than reproduction. The Government should provide different levels of training and provide sufficient teaching materials and*

*economical support, and moreover, curriculum and textbook should be more practicable. The teacher should avoid traditional teaching methods and acquire scientific or modern teaching learning approach. The classroom should be more collaborative.*

**My Relationship with English**

*Before joining KU, I learned many things through self-study but I never wrote reflection of class and content and even my life cycle, I never did any presentation and participated in a group discussion and I never got deadlines for assignment. During the very preliminary classes at KU, I thought that teachers were not doing their work but they were shifting their burden of work towards students just throughout the paper. I studied constructivist approach, cooperative learning, collaborative learning, pragmatism, theoretically but not practically and which are jargon for me here at KU. I just copy the assignment in pure mathematics section (to submit the assignment in time) to be safe from lecturer. I saw different teaching strategies and most of the methods were student centered. I thought that I'm not choosing the good university and it was appropriate time to leave KU because my mistaken beliefs suggested that teachers of KU were not giving full-fledged knowledge as they were merely forcing us to search for new ideas.*

*Our teachers tried to help us to construct our own knowledge through constructivist ideas. Constructivist teaching/ learning approaches are based on a philosophy that teach individual define knowledge in relation to his own experiences both in isolation from other people and in a social setting (Von Glasersfield, 1989). In the name of constructivist idea, teachers were giving us more works. As a result, negative impact is promoting on my mind and*

English language is not the issue/problem but self confidence in learning strategy and engage in learning should follow.

*am about to leave KU because of teaching methods. Actually my English language is not so good and I am even unknown about different teaching ideas. So, I thought KU was not appropriate place for me. My desires for practical knowledge were about to die out. I was in a big problem. My English language was poor and my friends had good skills in English. I did not want even to talk in English because of my performance. Sometimes I felt shy to give presentation on something in front of classmates. I shared my feelings, attitude and reaction with one of the ex-student of KU and he said to me, "you can rock if you change your attitude." Furthermore, he suggested that I change the way. I see the world of teaching towards learning. Gradually, I began to see some lights on the horizon but one thing I must share here is that at the same time I love to read CAMT (531) which is the one of the subjects of KU in M.Ed. program till date.*

**Expanding the Text…**

How far could I remember? My memories in my first year in a rural government school in Nepal designed my earlier learning. I was then six years old, the regular age of student upon entry in the class I in the primary level. It was when I started to be academically inclined with the everlasting support of my parents (Father and Mother). I do not have questions about my teacher for which I see my father, a good teacher and I like him, the way he teaches and the way he treats us as his students. All I can remember is the excitement. It was stepping a block advance every time one answered correctly. It was also a competition of quickness in performing in which I always won. I work well with it and I love the mode of intensifying my mastery through that different game competition.

It was seemingly that I gained the trust of my teacher that he left the whole class to me. I couldn't imagine the challenge of the personality of leadership at that

time at the very young age of seven to manage a class of 40. Well, then I nodded with a “yes” to the responsibility. I let the disorderly classmates read while I was playing. I just love playing. I just left them to do things on their own. The class became so noisy until the teacher arrived. The following day, I found myself together with those unruly classmates left standing under the heat of the sun as punishment of our misconduct and there I found myself crying while my other classmates were trying to cheering me up. We were given a condition that we could only sit down until we could give the correct answer to the question. My teacher then gave the first question and so I did raise my hand, then I gave the right answer, and was able to sit. Since then, I didn’t find myself misbehaving and I gave my best performance. All I did was that I just sat, listened, and waited to be called by the teacher. In my profound thought, the incident gave me an idea that school is all about behaving and performing well in class and that is how a student can please a teacher.

There were no students and yet I went to my room and there I found my teacher cleaning the room and so I helped. It was just I loved going to school and I didn’t want to miss a single day. It was then in my class III that I could still recall how I master the fundamental operations. We were asked to memorize and recite to our teacher the multiplication table during the gardening period as though we were to confess to a priest. I confidently then made it. I manifest speed in calculation that helped me perform better in math. My teachers in the succeeding grades emphasized the speed and accuracy in calculation too at the advantage for those who had mastered it. Those who could perform gained the merit. There wasn’t at all a picture of a collaborative exercise. Presentation of the lessons was structured as an individual effort. I could not remember any instance how I shared and discussed answers with my classmates. I could no longer figure out how the rest of my classmates logged

behind. I could be the first to give the correct answer. I loved the feeling of being able to show how quick I was in solving. I always competed with my new classmate. But still I was happy since it wasn't a long gap of time of finding the answer. I love all my mathematics teachers. They are all good at math especially my class V and grade VI teachers who were known as best math students in their school years. A common quality in them is that they both emphasized speed in performing mathematical operations. There were simple word problems introduced to us, yet I could not remember any form of students' small group collaboration in solving those problems. Still it was a whole class presentation and demonstration made by the teacher and it was the students' individual responsibility to learn. Yet, I still found myself active in responding to the teacher and in fact I didn't mind what my other classmates were doing. Maybe, I was always seated in the front row throughout my urban schooling years. I was able to present to my teacher the correct answer. Definitely, I didn't see myself displaying any form of passivity in class and I was even the most behaved pupil. This might be because of my class I get punishment. Whatever would be the reason of having been behaved in class, I always had had an image of active in the sense that I always responded to the teachers' question, and attentive. My high school mathematics remained the same. It gave the same twofold impression of dealing with mastery of the patterns and speed in calculation. It is good that I had the passion for the subject that I did not mind the relevance of the lesson at all to my life. As long as I got the solution, I had all the exalting satisfaction. And I always had good grades in math. I didn't hate the subject at all even if all through the years learning mathematics means attentive listening, observing teachers' demonstration of solutions, and following what was demonstrated. I do not have any sense of the need for the teacher to explain the importance and relevance of mathematics in life. All I thought was

that's mathematics learning and teaching. As long as the teacher can correctly demonstrate and explain the lesson, I can understand and give correct answers. Then, that's it.

There were no convincing answers why we had to follow such formula. There was no conception that mathematics was difficult. It seemed that I developed a structure of learning that understanding mathematics – being able to perform correctly mathematics exercises- only requires students to listen and watch the teacher attentively and focus on the explanation. I can still picture out how my teachers emphasized silence. They stopped talking and looked at students intensely signaling that they don't like students talking. Then, in a short while they would tell us, "How can you understand and follow my explanation if you don't listen." That's the promise of listening in mathematics. And the whole class would be quiet then. Of course, I was not the one being referred to since I was a quiet student and I would remain attentive to teachers' discussions. My teachers at the same time didn't have problems with me. I didn't have problems in understanding mathematics. I did all my assignments which serve as practice exercise and perform well in examination. I'm sorry, but I could not provide you my reader with any story on how I worked with my classmates and collaborated with them in solving problems. I could not provide stories on instances that I secretly discuss answers with my seatmate since all my eyes were on my teachers. My college mathematics holds still the same picture of teaching and learning. The teacher comes to the class, presents the subject matter, and explains the procedures and rule. Silence, listening, attention, and focus are the requirements in learning mathematics- learning which means being able to follow the given procedures. Still the same things apply at this stage too. I didn't have questions on how mathematics was taught, I could do it anyway. I got high scores in the quizzes

and examination and that was satisfying for me. My teachers are nice and they always bring new lessons in class, so what's the problem? Other students' low scores in the exam is not my concern anyway. So, there must be none. It was in my calculus class that I can still remember some thoughts about teaching being told by my teacher were troublesome. The class was composed of less than 15 students and all of us are under the mathematics education program. I like my teacher and I find him good at teaching. He explains the lessons well and illustrates examples. Our class is held in a research room frequently. I do eyes breaking thing on my seat so I would not fall asleep. While he is explaining the lesson and writing solutions on the board, I strike some key points (notes). Everyone smiles and looks at me. My other classmates also do the same, striking the key points (notes) while copying the solutions.

Then our teacher starts the explanation so we all stop writing. Along the explanation he says, "We will not just discuss the derivation of this formula since it would just add up to the complexity of the lesson. Anyway, we could no longer question the mathematician who formulated this. They are already dead." The class bursts in laughter. He continues, "I will just give you examples using this formula." He explained it well so I was able to follow. Then later he assured us, "That's what the beauty is in teaching mathematics. You can just give 2-3 examples to students and then practice exercises and the teaching is done." In my mind, I felt like teaching mathematics too though it's only my minor. His assuring statement encourages me do well in mathematics because chances are I'll prefer teaching mathematics than my major. After he told us that he has an open-notes exam for there are certain formulas needed. Certainly, we are happy about it. He says, "I would allow you to open notes so you won't bother memorizing the formula and can go over sample problems." That must be an advantage of course to us students. Sometimes when I feel sleepy and tired

in this class since it the Saturday's class, I only listen and copy the example and then take a deeper understanding of the lesson by myself at home while doing my assignment. Still, I got good grade in calculus and so I am happy about the subject. Reflecting on the proximity of my experiences as learner to my experiences as a teacher, I have induced the thought of who I am as a mathematics teacher. Are my teaching practices mirrored in my formative years in school? Do I treat my students on the way I learned mathematics? Do I emphasize mathematics as a matter of mastery of patterns and speed in calculation? Do I hold a class of controlled behavior heading to the same rhythm of getting the correct answer? What beliefs of learning do I hold that influence my own teaching practices? Learning in the context that I have been through has seemingly equated knowledge as an objective truth. It is the kind of knowledge that pre-existed outside my own processes of inquiry. It appears that knowledge is an absolute truth independent from individual conception (Yero, 2002), apart from how the individual conceive it. It is likely that knowledge is a pre-given truth regardless of the cognitive processes and inquiries of the individual. To this effect, my own experiences of learning seem to reveal that instead of regarding knowledge as the intertwining processes of inquiry and the product of such investigation and exploration, knowledge is being equated as the product which is unquestionable of its truth. In the context of my experience being able to follow the procedure indicated by getting the correct answer is what I conceive as knowledge.

Hence, knowledge becomes an objective truth. Is it not that my own experiences make me believe that knowledge is absolutely an objective truth. Knowledge being objectified must have led me to think that mathematics teaching is the transmission of knowledge as an objective truth. It must be the case that teachers are made to believe to the transmission of knowledge as an objective truth to the

students (Yero, 2002). It is not too far to believe that mathematics teaching to be accurate in transmitting knowledge in its objectivity ignores or places a little regard where, how, why, and who in the process of inquiry. What seemingly matters is the mere transmission of established mathematical facts, rules, and procedures that I was made to believe students should know. This notion may possibly result in learning of mathematics as a reproduction of what has been considered as true knowledge and places students to routinely reproduce it. It must be in this context that students become passive thinkers for the way knowledge has been conceived as devoid of the mathematics classroom. Students have been taught mathematics that leads to a single answer using what is considered as the best way of solving. Can students be blamed on how they conceive learning mathematics? On the one hand, can I blame my students if they seem not to be thinking in my class? Perhaps, students might have believed that their own thinking has no or little value in the mathematics for what matters are the unquestionable procedures laid before them.

Viewing knowledge as objective truth has likely separated the product of inquiry from the process of inquiry. Palmer (1998) explains the objectivist myth of knowing that objects of knowledge are out there in the conceptual space as described in the field. I am thinking that these knowledge objects are the contents specified in the mathematics curriculum that both my students and I have been taught to believe what constitute as the true knowledge. Unconsciously, I have been framed into teaching mathematics in which these knowledge objects are what count, the accurate following of mathematical rules, procedures, and concepts. Palmer further conveys that teachers who are considered experts are trained to know these knowledge objects without injecting their own subjectivity upon teaching. This must be the immature assumption I held on the accuracy, requiring students to present the exact process as

demonstrated? While the objectivist's myth considers students, the amateur who do not possess such knowledge and that acquisition of this knowledge is dependent on the expert, the teachers. Apparently in the mathematics context, I stand out to be the expert demonstrating as if I possess what is the real mathematics knowledge and thinking that my students must accurately follow.

> *It is a sunny Saturday afternoon and I stand before the class explaining simplification of algebraic expressions. Students are all seated with their eyes on me. I have illustrated them a quite complex algebraic expression which appears to them so intricate. But I assured them, "I'll show how easy it is to solve this". Easy! They all exclaim with a wondering smile. I just give them the smiles they give me. That's what I always say to my students- mathematics is easy and not difficult. One my students who frequently cracks jokes in the class says, "You are always telling us man (repeating word after a single sentence) that it's easy but we always find it difficult". I smile at that student and thus the whole class had second chat with their mates and me. "Ok, I'll assure you that this is easy, so I say. I demonstrated the solution, having them answer every question that lead to the steps of the solution. Finally, we arrived at the answer. I am quite fast in asking those questions thinking of the time. Suddenly, one of my students shouted out "Tapai ta dharai janne manchhe" (You are an expert man!) I laughed and said, "Isn't that easy?"My student further exclaimed, "It's easy for you man because you are the teacher, but for us it's difficult." I am a bit stunned at the statement. It seems to be giving me a striking realization. I may have focused too much on my way and own rate of learning. In my mind I said "God, I have never thought that" With that student exclamation, I slowly demonstrated another example.*

Clearly depicted is that I have been caught up in the objectivist myth which I have undergone in my own experience as a learner to have conceived knowledge as something that has to be given by teachers whom I considered experts. Seemingly, I have assumed in my own teaching of mathematics that knowledge has to be transmitted to my students the way I received it. The objectivist myth has entrenched into my belief system as I have experienced it, thus, my adherence to the teaching of mathematical knowledge as objective truth has made me unmindful in knowing what I mean by knowledge. Parker (as cited in Yero, 2001) points out that:

> In the objectivist myth, truth flows from the top down, from experts who are qualified to know truth…to amateurs who are qualified only to receive truth. In this myth, truth is a set of propositions about objects; education is a system for delivering those propositions to students; and an educated person is one who can remember and repeat the experts' propositions. The image is hierarchical, linear, and compulsive-hygienic, as if truth came down an antiseptic conveyor belt to be deposited as pure product at the end. There are only two problems with this myth: it falsely portrays how we know, and it has profoundly deformed the way we educate.

Evidently, I have created the teaching-and learning process of mathematics in which my own role, the students' role, and mathematical knowledge are distinct entities. What I see is my own role to transmit knowledge while I am expecting my students to take their own role of receiving it. At one end, both my students and I see mathematics as my knowledge in our own respective roles that I am the giver while they are the receiver of that knowledge beyond our own conceptions. It is knowledge that could no longer be changed and questioned just as my students could no longer question my role from transmitting it. Likewise, I could no longer question my

students to think beyond it. It is as if in the teaching-learning of mathematics, my role and students' role resemble the mathematical knowledge in its pristine form. Pugalee (2001) explains that successful learning situations allow students to become aware of their thinking and regulate their thought processes. The cognitive action of students in problem solving and other mathematical tasks must be activated if learning is to occur. Garafolo and Lester (1985) emphasize that in the process of problem solving students move from analysis of information and strategies, assessment of task in its level of difficulty, organization and planning, execution and monitoring of actions, to the verification and evaluation of decision and results. This schema of problem solving that further applies to other mathematical tasks suggests that learning mathematics begins from the students' conscious awareness of their own knowledge related to the task. The students are into learning mathematics in that they are likely being deprived of thinking every time they are asked to simply follow procedures demonstrated in two or three computational examples. How can they become real problem solvers if they are not given the chance to become consciously aware of their own thought processes?

In my primary level and lower secondary level of schooling, I got scared of the teachers' unhelpful, dominant and bold characters. At this level, my perception to learn mathematics was like to obey teachers, to finish homework, to copy form the board and to prepare good handwritten notes to submit to the teacher and to stand in good position in the examination.

In the secondary level, my perception about learning mathematics is drilling problems form text book following fixed symbol, algorithm, remembering and reciting formula, definition, completing exercise from books, and preparing for examination. During college level, I found mathematics a very abstract and foreign

subject (Luitel, 2003).It consists of already discovered rules and procedures and that are to be applied to do a particular set of problems. As a student I perceived mathematics as a hard subject, only inborn talented students can learn mathematics. Text book and teachers are the main sources of knowledge. In my experience, many of the teachers have followed behaviorist approach ( Belbase,2006) of teaching, where teacher's role was superior in the classroom I think a behaviorist teaching style in my experience in mathematics education tended to rely on practices that emphasize rote learning and memorization of formulas, one-way to solve problems, and adherence to procedures and drill. I agree with Alger (2009) that traditional methods teaching mathematics was/is dominated by the metaphor like teaching is guiding, teaching is molding, teaching is transferring knowledge. Teacher's role in my classroom was like a guide whose direction any way we had to follow as teaching as treasure hunt (Alger, 2009), teaching as molding was like teacher as potter, student as clay and potter use clay to shape any shape of vessel according to his/her desire. According to Thorndike (1923, p. 52, as cited in Ellis, 2005), mathematics is best learned in drill and practice. He further focuses that carefully sequenced, explicitly taught, and then practiced with much repetition in order for learning to occur. Memorization of facts as well as the ability to follow rules, execute procedures, and plug in formulas is glorified in traditional approach of teaching, and only those students capable of absorbing, accumulating, and reproducing received items of information in this manner excel in traditional mathematics classrooms (Hiebert, 2003). So, my perception toward mathematics as student form primary to secondary level was dreadful, difficult, incorrigible and infallible (Ernest, 2009) and pure laws of symbol, characters, algorithms (Luitel, 2009). As a learner, I perceive mathematics as a fixed hierarchical structure composed of a set of definitions, symbols algorithms

that is delivered to the students head through teachers head. Drill, practice, rote memorization, rightness in methods and answer, emphasizing outcomes and products were some salient features. Learning is considered to have taken place if there is observable change in behavior (Skinner, 1938) which can be measured via standardized test. According to Burton (1989), the pedagogical process which is most common in the direct instruction of mathematics, deny the influence of an individual or social context and present an artificial world of confidence, exactness and objectivity which is associated with power and control.

There is a Nepali saying that '*hune biruwako chilo pata'* means one who shows better understanding in every sector of life displays the good behavior what he/she has experienced. For me, my learning practices in mathematics began in the same way as I have been taught in my schooling, campus and university. I hold the same belief, I adopted the same environment, I used the same language, I dealt the same behavior as I could exactly be evoking form my past, my teacher had just completed certificate level when they began to teach without attended any teaching development program to endorse their profession in the secondary level. If something I had, that was the way of my teachers teaching mathematics by controlling the classroom and telling the text book as transforming the technical ideas only (Khatri, 2012).

At the time, my teacher used prepared writing theorem by giving same naming of books and copying the same on the board. My teacher did not have any idea how students gain basic ideas of geometry and learn to use logic in proving a geometric theorem. It seems that my teacher was completely unknown about the geometry ideas. In the classroom, he/she never shared their views with students and encouraged students work because they used to believe their students also should learn by rote

memorization of theorem as I they did. They never thought and made any relation of geometrical figure in out context basis. There is always lack of collaborative work within students; no discussion is made in the classroom between students and teacher. “My teacher holds the belief that students are passive learners; they don’t have creativity to construct idea of proving theorem, students should follow what I make effort to do any telling activity (Khatri, 2012). They used to believe that if a student could score good marks than he or she is brilliant and those who cannot perform well in the examination are dull and problematic students to whom it is difficult to teach mathematics. My teacher’s responsibility was that, what school administration has given us was to maintain silent classroom environment with high degree of discipline and to make students able to score good marks in the examination.

On the other hand, for me, mathematics and mathematical ideas cannot be created by us; it is superhuman (Ernest, 1998). In my experience as a mathematics learner, text book was the main source of teaching and learning. My conception about the learning is change in behavior and /or change in the learners’ cognitive structure (Vrasidas, 2000). Teaching practice went on ‘chalk-and-talk’ approach whereas students practice occurred on copying, memorizing and drilling the work. My perspective about relationship in the mathematics learning is objective and absolute structure of knowledge which can be expressed in words and symbols; it is im/pure body of knowledge (Luitel, 2009). We should accept these absolute truths paying high effort of drilling, teaching is knowledge transferring process from the teacher’s head to the students head, teachers are sources of knowledge and students are the receptor of knowledge. My teacher used to believe that effective teaching and learning occurs in controlled environment.

According to Burton (1989), “teaching practice was like metaphors “the filling of the empty vessel” and “peeling of the onion””. First skill is shown to the students and knowledge is transmitted to the students then students are helped to perform taught knowledge through repeated practices for getting right answer. I should agree with the view of Burton that the pedagogical processes, which are most common in the traditional instruction of mathematics learning, deny the influence of the individual and social context and present an artificial world of confidence, exactness and objectivity which is associated with power and control. I used to view mathematics as a vast collection of fixed and infallible concepts and skills (Romberg, 1992).

According to Ernest (1996), teachers’ conceptions of the nature and meaning of mathematics are crucial to teachers’ approach to mathematics teaching. In my view, mathematics teaching is like jug to mug process where teacher is as a Jug means holding more knowledge whereas students are less capable to hold knowledge and teacher pours knowledge to the students. In my classroom, my teacher always used to urge us that mathematics was not an easy subject to gain in a miracle way, we need to put very hard effort to grasp its skill and to master its knowledge.

Sometimes my teacher used power of superiority in the classroom to emphasize rote memorization of formula without any model or concept and charged me for lacking of read and write formula correctly. They did not give me to raise my voice and did not allow us to construct our idea on solving mathematics problem. The adage says, “Teachers teach the way they have been taught” (Frank, 1990, as cited in (Khatri, 2012).

From the above background, I have drawn the following conclusions as the good student-teacher relation.

**Developing Positive Perceptions**

The following teacher actions develop the perception in students that they have a good relationship with the teacher in mathematics learning process.

**Showing Interest in Students' Lives**

The busy secondary teachers with more than 200 students in all classes can hardly know details about every student's life. However, teachers can cultivate a positive relationship by knowing students by name; asking them what they thought of recent occurrences, such as a sports, popular movie, or song; asking them what they're interested in; and simply inquiring whether school is going well for them.

**Advocating for Students**

Students believe that teachers are advocating for them if the teachers appear to want the students to do well in class. Certain teacher behaviours work against this perception. For example, a teacher who announces that he or she will reward no more than five as at the end of the semester is doing little to foster the perception of advocating for students. Such behaviour says to students that the teacher is more committed to an arbitrary criterion than to student success. Teachers can promote the perception of teacher advocacy by setting up times when students can talk individually with them, asking struggling students if they need assistance, and helping struggling students determine what they need to work on most.

Teacher, Teacher please be my Guide,
Show me the way which is right.

Teacher, Teacher please be my side,
With you my sorrow and pain gets hide.

Teacher, Teacher please be my candle,
Remove the dark of my life like an angel.

Teacher, Teacher please don't leave me ever,
I need your love and help for forever.

**Never Giving Up**

Promoting this perception means that even when students don't perform well or when they get behind in their assignments, the teacher should continue to offer ways to help them to catch up. The teacher might establish small-group tutorial sessions that students can attend or enlist peer tutors from among those students who have mastered the material. Never giving up on students also includes being a cheerleader for some students, telling them to "hang in there" and keep trying. Teachers might also relate personal stories of when they had a particularly tough time with a class.

*Teachers are dedicated, to our education.*
*This is their passion, and our liberation.*
*Their sincere kindness, warm feelings, it brings.*
*They guide and protect us, under their wings.*
*They show us patience, and readily spread.*
*Their helpful advice fills us like bread.*
*They don't just instruct, but encourage and believe,*
*That there's nothing out there, we cannot achieve.*
*They think about, our future all the time.*
*Work tirelessly to direct us, away from conflicts and crime.*
*At the end of the day, teachers do understand.*
*It takes both tools and love, for our minds to expand.*

**Acting Friendly**

Fostering the perception of a friendly relationship has nothing to do with how "friendly" a teacher actually feel. Many teachers' behaviours promote this perception of friendliness. For example, a teacher might banter or joke with students; smile or make eye contact; or, when appropriate, places a hand on a student's shoulder or pats a student on the back.

## Chapter Summary

In this chapter, I have discussed different influential beliefs system of students about mathematics as mathematics learner, the mathematics factors, and beliefs of learning mathematics in my own socio-cultural and economic condition and its impact

on relationship with my mathematics teacher as a student. In this chapter, factors are presented in different ways which are my beliefs, my surrounding society, my teachers' image, context based mathematics teaching and teacher's reflection towards mathematics teaching. As I have discussed the socio-cultural context of mathematics, I have represented my earlier beliefs towards mathematics and its impact upon conceptual mathematical learning to have a better relationship with teacher and students in mathematics classes. Furthermore, I discussed my possible relationships with mathematics teacher; how s/he facilitated and restrained my learning as a student. This chapter also deals from the lens of my own lived experience as a student from home to university in different forms of relationship. In the next chapter, I'll discuss the relationship with mathematics learner as teacher in different forms of relationship (cold, warm, cordial etc).

# CHAPTER V

# RELATIONSHIP WITH MY STUDENTS AS A TEACHER/FACILITATOR

## Chapter Overview

This chapter deals with my belief and journey as a mathematics teacher in the field of teaching mathematics in the context of Nepal. In this chapter, I have discussed how I have developed relationship with my students. In my lifetime, I have been teaching a number of mathematical concepts knowingly and unknowingly in cold, worm and cordial relationships. Thus, I think it is very important to explain my cultural, family situations and school culture before explaining any factors which influence my relationship with my students in mathematics teaching.

In this section, I would like to present my lived experiences ranking from initial stage of teaching career taking into consideration how I was treated as a mathematics teacher in different relationship. Furthermore, in this chapter, I have recollected the nodal moments of my teaching experiences as a learner who inspired in cordial relationship in mathematics teaching process to enlarge better relationship with students in mathematics teaching and learning. Thus, I am going to explore different influencing factors, my belief sunder the themes of below.

This table portrays my stepwise pedagogical transformation in my educative process:

| Stages | Characters |
|---|---|
| **Tutor**<br><br>(Seven years before (2006))<br>↓ | Almost no idea of teaching and learning methods.<br>One-way transmission of knowledge.<br>Full control of tutor.<br>Teaching means transmitting and learning means reproducing.<br>Motivation by negative reinforcement.<br>Very little positive reinforcement.<br>Less of psychological factors of learning.<br>Strict discipline.<br>Monotonous teaching and learning.<br>Idealist philosophy as close to practice. |
| **Mathematics Teacher**<br><br>(Four years before (2009))<br>↓ | Little ideas of teaching and learning.<br>Some ideas of psychological theories of learning.<br>Mostly one-way transmission of knowledge.<br>More lectures and less discussion. Direct instruction<br>More control by the teacher.<br>Transmission and reproduction of knowledge.<br>Positive reinforcement was frequent.<br>Physical punishment was occasional.<br>Strict discipline.<br>Little focus on weaker section class.<br>Do or die no more cooperation.<br>Realist philosophy as close to practice. |
| **Mathematics Educator**<br><br>(two years before(2011))<br>↓ | More ideas of teaching and learning.<br>Be awareness of psychological factors.<br>Both one-and two-way transactions.<br>Lectures more and discussions less.<br>Locus of controlling the class lies with both the teacher and students. (mutual share of responsibilities)<br>More transmission and reproduction with weak understanding and construction of meaning by students.<br>Neutral reinforcement. No appreciation, no punishments.<br>No issues of discipline. Friendly relation. |

| | |
|---|---|
| | No consideration of diversity of students.<br>Cooperation based on situation.<br>Objective knowledge, behaviorist approach of teaching and learning.<br>Research paradigm was objective structuralism.<br>Experimentalist philosophy as close to practice. |
| **Mathematics Teacher/Educator**<br><br>(Now)<br><br>↓ | New ideas of teaching and learning (Social and radical constructivism, post constructivism).<br>More awareness of students' autonomy.<br>Transmission, transaction and construction of knowledge.<br>Less lectures and more discussions/ Constructivist approach.<br>Locus of control lies with both teacher and students. (mutual share of responsibilities)<br>Students do, teacher facilitates.<br>Positive reinforcement. Students' efforts are duly appreciated.<br>No issues of discipline. Friendly relation.<br>Full cooperation and encouragement.<br>Little attention to the follow up of the plan.<br>More flexibility in the implementation of teaching and learning plans.<br>More focus on pedagogy.<br>Subjective knowledge, constructivist approach of teaching and learning.<br>Research paradigm is towards subjective constructivist and post-modernist views.<br>Experimentalist philosophy as close to practice. |
| **Mathematics Educator/ Researcher**<br><br>(Now and hence forth)<br><br>↓ | New approaches of teaching and learning.<br>Full autonomy to the students.<br>Research /case based teaching and learning.<br>Continuous assessment.<br>Reflective practice in teaching /learning and research.<br>Subjective humanistic perspective of finding new knowledge through research and experience.<br>Pro-people, social and cultural mathematics teaching, learning and research with the view of global and local |

| | |
|---|---|
| | needs.<br>Popularization of mathematics education through new vision, mission and goals of mathematics education for twenty-first century mathematics teachers.<br>Investigation of people's mathematics in Nepal and analyze its curricular relevancy.<br>School mathematics support program of KUSOED and other agencies (DOE, PABSON, UNICEF and others).<br>Existentialist philosophy in practice. |

**Being in the School:"Am I Luti?"**

*It can be any day of July 2012; my field work for this research was towards the end. I was familiar with relationship between teacher-students and its impact on Mathematics learning and nature of relationship they had because this was my third visit to the same school. By then, I was also familiar with the names of the students. On this July morning, when I was inside the class as a researcher; waiting for the mathematics teacher, I planned to engage myself, so I chatted with student. At the same time mathematics teacher came to the class. I got surprised! I found the behaviors of the teacher totally different which I had ever experienced. The students' names were all stereotypical names like Luti, Bahiro, Aathdo, even low strategies of name. I never had assumed that they were comfortable with these*

**Students Like You!**

With students like you, teaching is easy
I look forward to see you each day;
Your wondering minds keep me on my toes;
You make teaching more like a play.

Students like you make teaching rewarding;
When I go home, I'm content;
You pay attention, you learn-giving me
A sense of accomplishment.

Thank you for being the way you are,
For making my job so much fun.
I'll remember how good you made me feel,
Even when my teaching is done.

*names. Later on I came to know that they always wanted their first names to be called while being addressed. Isn't that interesting?*

*On that particular day, I talked about their names. I started a conversation with one of the student in Tiffin break asking whether or not she felt comfortable calling her by stereotypical name. She told me she was never ok with her stereotypical name. Un/like any other person, she wanted her first name to be called.*

*"Hello, 'Luti' (addressed by her stereotypical name and I could easily see the frown on her forehead)…… SssSahara" I greeted and we started conversation….*

*"Hi" she replied, "First time I heard someone calling me by this name except my mathematics teacher."(Stream of happiness was clearly noticeable on her face. I asked myself: Did she get her identity after calling by her name?)*

*"I am Sahara Chalise but my mathematics teacher calls me Luti. I don't understand why he uses this. I like to be called Sahara", she said leaning on the wall.*

*"I do agree with you, there is much more to our names, isn't' there?"*

*She seemed confused at that moment. And said, "Might be."*

*"Why do you want to be called Sahara? Don't you think mathematics teacher know you better by your so-called name, Sahara? " I further wanted to get her perception relating to her name identity inside the class room.*

*"Yes, he mostly calls me Luti. But it doesn't make me feel happy. Like other classmate I like to be called by my standard name. I cannot go against those*

*who call me Luti, no matter how successful I am. I believe this interaction will definitely give me my name."*

*I become more curious to know about the history of her name.*

*"Do you know why your mathematics teacher calls you Luti instead of Sahara?"*

*"I don't know. Perhaps it was my teachers who started calling me by this name at first in mathematics class. Then all started to call me Luti and so do other classmates."*

*"Are you blaming your mathematics teacher for your name?" I asked her.*

*She said, "It is not only my mathematics teacher but the whole school society is responsible for distorting my name. Even my other classmate names have not been modified. I think my mathematics teacher hates me. I'm also weak in solving mathematics problems and I feel such names reflect weakness. As I grew older, I came to know that my name was a stereotypical name. I felt if I had a name of my own as any other classmate, I should call myself "Sahara". I started loving this name as it gave me a kind of confidence and freedom.*

*Then I asked, "Sahara, could you please tell me how you would feel if someone addressed you by your both names respectively?*

*"I would feel happy if someone called me Sahara and not Luti".*

*She continued, "It gives me satisfaction. Standard name makes me feel good and gives me a sense of freedom and willingness to do." "Well then, I will call you Sahara and I believe this will give you pleasure." So I joined a chat with you to get my name "Sahara".*

**Extending the Text: Name, Identity and Relationship**

In this section, I expose the identity as blaming (Gautam, 2011) showing how names of students are being distorted within the mathematics classroom. Believing that name is a primary unit of identity, I unpack the issue of names in the mathematics classroom. Meanwhile, I am constantly struggling to explain Sahara's situation of blaming her mathematics teacher. I sometime accept that they became un\happy, de\active because of their mathematics teacher. There might have been other influencing factors besides her mathematics teacher or obligations that prevented her from doing well in mathematics problems. This might not be the newest argument. Of course! I am just beginning to address the hierarchical structure of teacher student relationship. How are democratic practices enhanced by mathematics teacher used in classes? If I have not understood differently, students can merely blame their teachers. What types of democratic values and practices are attained in mathematics classroom?

**My Journey as a Novice Mathematics Teacher in a Government School**

*It could be in December 2009, I got a job of a secondary mathematics teacher in one of the government schools in Dolakha which was my first experience in teaching career. I felt very difficult to get adjusted with the students. In the very beginning of my classroom teaching, I was unable to understand my students' interests which craved bad relationship with my students. Nepali was the medium of instruction and I was from Nepali language background but the society of that area was Tamang, so they hardly responded to my question. My spoken Nepali was satisfactory in terms of teaching and the students understood my explanation easily. I felt that my students were frustrated with me. One day, one of the students from class ten said to me "Sir, we cannot understand your teaching." I perceived that word and that moment as a very much important incident in my life.*

*After that, I started thinking about myself and my teaching style. I was very much concerned about my language of teaching time and again. Before joining that school as a secondary level mathematics teacher, I never spoke confidently. However, I appeared to have improved gradually with my hard endeavor and regular practice after some days of teaching. Then my students gradually started enjoying my class and liking my teaching style and having a good relationship now and again. Sometimes, I would tell them to write reflection about mathematics, mathematics classroom, mathematics teacher and behavior of mathematics teacher to promote good relationship. From those reflections, I generated some critical points for the improvement of my teaching and learnt about my student's interests.*

*After getting their reflections, I made plans to address their problem and started teaching them through different teaching method which could reduce bad relationship so they could easily engaged in learning. During the initial stage, it was difficult to think about activity in each and every class. But after some days of teaching, I started feeling easier than my traditional teaching styles. Persistent and continuous reflections within the practice of teaching are effective for teacher researcher and they help develop teachers' professional development also as research is linked with writing papers and making my 'findings' open for public discussion and critics. After some classes, I started writing reflection on my teaching practice and it helped me to develop my teaching skills. My recent concept of researcher developed thereby helping me to become a critical teacher researcher.*

*I have come to know that critical research critically examines the positivistic perspective of rationality, objectivity and truth. Critical social science promotes self-reflection which results in attitudinal change, and thus critical teacher researcher challenges the current educational system that puts emphasis on using students as*

*numbers rather than persons. It helps to develop as a reflective thinker. Self reflection and self questioning are the key terms of critical teacher researcher. I started walking transformation journey in teaching profession by applying different teaching method and becoming a critical user of it. It is based on learning as a system of profound knowledge and taking actions based on leading with knowledge and courage.*

**Episode I: Teaching without Knowing!**

*I think it should be a winter's day in 2009. The chilly cold with a westerly breeze made me coil up in my bed till late morning. I had to reach my school by 9.50 a.m. I was a bit late that day, as I could not reach the school on time. I was late by a few minutes. My students were playing outside the classroom. I went into the classroom without appearing in the office. I sent one of the students to get the attendance register from the office. After taking attendance, the drama of teaching and learning mathematics started.*

*I asked Roshan about the day's lesson. He said that it was to start values of trigonometric ratios of standard angles. I made a chart on the board for the values of $0^0$, $30^0$, $45^0$, $60^0$ and $90^0$ degrees of Sin, Cos, Tan, Cosec, Sec and Cot ratios in a tabular form.*

Children are the future of any nation so we properly care them with lots of hope for future. My parents also hope and desire to make me better guy in future so they understand my feeling, attitude and reaction of any matter. They understand my need and my security. I choose a model that can foster my ability to know my students in better ways that are as follows and tried to investigate from each of the students and treat it well, I'll check frequently, who arrives on time in school, who listens to the other, who is dynamic and participates in all program organized by school, who tries to secure good results, who is up to date in the work, who respects, who helps the others, who knows how to express his/her ideas, and who expresses his opinion, who is punctual in his/her work. From the above ides, I'll know the ability of each individual in my teaching career and foster my ability to know

*The chart appeared like this:*

| *Angle* / *Ratio* | *0°* | *30°* | *45°* | *60°* | *90°* |
|---|---|---|---|---|---|
| *Sin* | *0* | $\frac{1}{2}$ | $\frac{1}{\sqrt{2}}$ | $\frac{\sqrt{3}}{2}$ | *1* |
| *Cos* | *1* | $\frac{\sqrt{3}}{2}$ | $\frac{1}{\sqrt{2}}$ | $\frac{1}{2}$ | *0* |
| *Tan* | *0* | $\frac{1}{\sqrt{3}}$ | *1* | $\sqrt{3}$ | ∞ |
| *Cosec* | ∞ | *2* | $\sqrt{2}$ | $\frac{2}{\sqrt{3}}$ | *0* |
| *Sec* | *1* | $\frac{2}{\sqrt{3}}$ | $\sqrt{2}$ | *2* | ∞ |
| *Cot* | ∞ | $\sqrt{3}$ | *1* | $\frac{1}{\sqrt{3}}$ | *0* |

*All the students wrote these values onto their copies. Prakesh stood up from his seat and asked me how these values were determined. I replied that these values could be found by geometrical methods. But he was not satisfied. I saw him in gloomy mood and he was looking at me with an unsatisfied look. I told him that at first they have to be rote learned and then we would start solving problem. I told them that geometrical proof of how to get Sin 30° = ½ was not necessary for them at the time because such questions are not asked in exam. So, the proofs are not important.*

*When all the students finished their writing, I told them to read silently the values of Sin ratio for ten minutes. I moved front and back in the class while they were reading the values from the table. After ten minutes, I told them to stop reading and be ready to answer my questions.*

*I pointed to Manju and asked, "What is the value of Sin 60°?" She replied correctly with some confusion. Then I pointed to next one, Deepesh, and asked,*

*“What is the value of Sin 45°?" He said ½. I gave him a gentle pat on his head and said, “No, it is one over root two." I asked the values of all, one by one in turn. Some could give the right answer and some were in confusion. I told them to read the same at home. The bell rang and my period in the class was over.*

My routine of teaching mathematics continued with the methods and practices as is obvious from above. I did not let my students ask questions. I did not encourage them to do group work nor did I apply cooperative learning. The class used to be in my full control and the students were passive listeners and copiers. I considered myself as the supreme source of all mathematical knowledge for them. I was a transmitter of the knowledge to them and they were the receivers. Sometimes I used to give physical punishment to the students when I felt that they were not paying attention to my lecture. How much they received was tested in the terminal and final examination. Is that approach a good approach to have a better relationship with students? Is that a bureaucratic relationship between teachers and students?

**Episode II: Teaching Algebra to Beginners**

> *Mr. N was going to start the algebra lesson for the first day in grade six. He told a boy at the first bench to go out and find a few pebbles. Two boys ran out and brought some pebbles from the back of the school wall. The teacher started writing something on the board. He writes 2 +3= [ ] He asked a girl from the middle row to fill the fox with a number. She writes 5 in it. Then he wrote 3 + 3 = [ ] and asked another boy at a corner to fill the box. He wrote 6. The process continued for a while with structures such as 4 + 3= [ ], 5 + 3 = [ ] and so on till 10 + 3 = [ ]. Then he represented a pebble with x, next also with x and so on till five/six pebbles. Then he wrote 2 pebbles + 3 pebbles = [ ]. He asked Bibek to fill the box. Bibek filled 5 in it.*

*He then asked other students to fill the box. Again Mr. N wrote 1 pebble + 3 pencils = [ ] and asked the students to fill the box in their own copy. Almost all the students wrote 4 in the box. Some wrote 4 pebble and pencils. Then he showed the first example putting pebbles and asked them again. Many students did it correctly. But when Mr. N put one pebble and three pencils on the table and asked the students to add, they were not getting the idea. Mr. Z clarified that one pebble and three pencils could not be added. He represented one pebble with a x and three pencils with three y's and told them to write it mathematically, then students were again confused what mathematically meant. Then the teacher writes x + 3y as the sum of a pebble and three pencils. One student, perhaps Suman, asks, "Why do we denote pebbles with x and pencils with y?"*

*It struck him. Mr. N answered that they could use alphabetic symbols to denote objects and their numbers. In algebra we use such symbols. The boy asked why to use symbol. Mr. N said it was a custom in mathematics to use symbols, especially in algebra, instead of numbers and objects. Mr. N gave some algebraic expressions to add. The students were engaged in adding the algebraic expressions. They were for the first time doing such mathematics in their class and outside class was beyond their imagination. Mr. N finished discussion on the first day of the algebra class and gave some questions as homework for students. Mr. N returned to his office. He felt a difference on the day after returning from the classroom. He thought that grade six should be easier to teach since they were the beginners in algebra.*

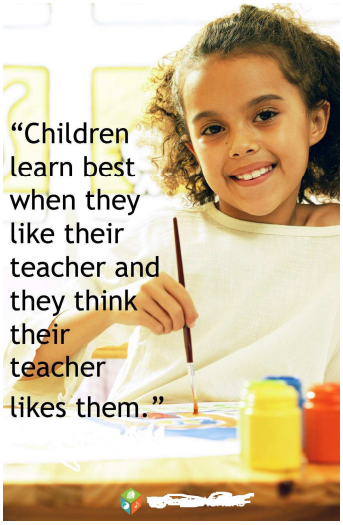
I think that it is the pedagogy of teacher to adopt appropriate methods of dialogue, discourse or interaction among teacher and students. To me, Mr. N might

have thought that he teaches very well and he makes students maintain pin-drop silence in the class. He keeps his students well disciplined. The sixth graders are relatively more difficult to control as they do not understand the abstract nature of mathematics, they start buzzing. I feel that Mr. N may have been thinking that he is a good mathematics teacher and mathematician. But there are things that he still needs to learn while teaching. Why are pebbles denoted by x's and why are pencils denoted by y's? The same question echoes in his mind, soul and thinking. He tried to ask his own teacher in the same school but could not get a satisfactory result. He then thinks, "Knowledge and understanding are relative". Absolutist knowledge and reality is the hindrance in mathematics education. He thinks how can pebbles be represented by x and how can the pencils be represented by y. It is a kind of representation in mathematics. Mr. N finds complexity in simplicity and simplicity in complexity. It simply depends upon how they are treated and how students make meaning out of those things.

**As A Novice Teacher in a Private School**

*It could be any day of August in 2012. While I was planning Module for seminar issues in mathematics education, one of my friends called me to meet him. I went at the same time as he proposed me a teaching job at another colleague's school in Lalitpur. However, I was not thinking about job because I wanted to complete M.Ed. program first. I told him to wait for three days for my eventual decision. Finally, I decided to join asserting that I could manage my M.Ed. study and my dissertation writing project. I requested the principal to provide time for my research after completing my class. He agreed upon my request and then I started teaching. It was my second formal teaching in an established institution at Kathmandu Valley in a private school.*

*In the beginning, I felt quite difficult to adjust with formal teaching process in the private school. Since, I had already changed my direction; it was a challenging task for me. I wanted to teach them through activity-based pedagogy. I started teaching them by using instructional teaching materials in mathematics which I borrowed from my university ideas. I was using different approaches for them to teach mathematics. I continued to contemplate how to encourage my students to embrace their perceptions of learning, even as I searched for ways to foster moments that might bring about epistemological shifts in their perspectives. Using this dual approach of embracing and transforming, my teaching experiences continue to be both challenging and engaging (Sarah, 2006). I had learned more about teaching mathematics. I guess I kept thinking I would teach mathematics the way I was taught, but this class made me realize there are many different approaches to teaching mathematics. Before that I was unaware of the theories and epistemologies that underline the teaching of mathematics (Ernest, 1991). I have learned it could be ok to allow students to explore and discover ideas.*




Source: https://www.facebook.com/WeAreTeachers

*Also, I think it might be good for students to struggle with ideas. I learned this with fractions! This struggle made me appreciate this concept*

*more. Now, I feel I have a positive attitude about math (Spring, 2005). Sometimes, my teachers believed in mathematical mind. They would say for good mathematics learner, mathematical mind is necessary. But I do not think it exists. I think everybody can do mathematics if they try to link it with their socio-cultural aspects.*

Being able to think mathematically is also the political word because mathematics is linked with power and social status. Real world is attached and everything is interrelated, so mathematics and our societies are also interrelated. Mathematics always helps society for problem solving (Keitel, 2009). So as a novice teacher, I faced those kinds of environment as I was simply like a '*man with no name'* (Kincheloe, 2003).As a novice teacher, I need to experience the research process in ways that allow me to articulate and reflect on my personal versions of teaching rather than merely imitating the articulations of others (McWilliam,1994, p.149).

Traditional mathematics teachers try to make mathematics a powerful subject to exercise their own vested interests. To my experience, they actually wanted to make mathematics a hard subject for society because they wanted to sell it according to their way. My colleagues were making mathematics as a hard subject but I wanted to break such myths about mathematics. I was feeling uncomfortable with my colleagues because of their rigid beliefs about mathematics. They would beat students and I was just against their attitudes and behaviours. I always tried to motivate students through different techniques. I was more flexible teacher for my students. I never prescribed any rigid way of writing and doing mathematics. Flexibility is one of the key traits of a confident student. Learning to be flexible in your daily activities prepares us to meet life’s greater challenges (Kanar, 2011, p.2). My colleagues were thinking mathematics teaching learning process as a Jug and Mug process whereas the

students' mind is not *tabularasa* (Paudel, 2008). So we need to think about alternative solutions to each and every problem. I think it is not better to consider anything absolute. Different society can give different solutions to problems. Mathematical learning should be viewed both as a process of active individual construction and process of enculturation into the mathematical practices of wider society (Cobb, 1994). So, mathematics teacher should think about multiple solutions to a particular problem. There may be chances to get new ideas about it.

**Extending the Text: Being a Facilitator/Teacher**

Every day was a picture of extremely fascinated teacher efficiently preparing daily lesson plans, visual aids and instructional materials (use full in mathematics teaching). Classes went on as fast as the rolling of the class in my teaching career years and the math class turned out to be a race that students needed to chase. All I wanted was an answer which only the gifted few had at snap of a finger. What mattered most was that somebody in the class could give me the correct answer and so that's it. It looked as if one or three of the students represented the learning of the class.

It was not too far a model of the competition I was exposed to when I was a student. The only difference was that I had prepared teaching resources and varied my teaching strategies just to make the class drastically engaging. Eventually, the class turned as though everything was fully absorbed with the cheerfully active participation of students in the activities designed for the day. I frantically moved on from one lesson to another just to cover the syllabus demanding students to catch up on their own. It was all an assumption that I was catering the same types of learner who were all capable of going with the class flow. I was unmindful of those students who truly needed me as a teacher. At worst, I turned severe in discipline that I was

controlling the class in the way I wanted it to be. In my mind, mathematics was a matter of discreet following of steps that can only be achieved by an earnest observation of the demonstration of the answers. Careful attention during the discussion is a must. And I always emphasized and told my students, “If you don’t know how to do it, you have no right to keep your mouth talking. It is only in attentive listening that you can follow my discussion and explanation. When you chat even a second to your seatmate, you will fail to understand the process because surely you will miss a step.”

And I always find my students scared talking to their mates because surely I’ll reprimand them. Failure in bringing books and not doing assignment turned out to be a crime. I immediately lost my temper upon my students who were not responsive enough in doing assignment that I presupposed would give them avenue for practice and mastery. Until one day, I was taken aback at the frustrating examination results of both grade IX and X students. Nearly 20% of them only passed the exam. I was absolutely emotionally exhausted at the abortive efforts I had had in my class. I felt the heave of disgust with all the preparation I had made. Everything came into naught and was for me all a waste of time. I fret over the impression it would create that I wasn’t an effective teacher despite the efficiency I devoted. I wanted to absolve myself from the failure by putting the blame on my students, yet it didn’t pacify my feeling at all. Displaying an outrageous dismay, I had an earnest open forum with my students. I was laying down to the class how sure I was I did my part to let them understand. I was trying to let them feel that I made the best I could and subtly suggest that they were guilty of their failure. “So what’s wrong with the class? What’s wrong in my teaching? Tell me honestly”, I exclaimed in frustration. At the shaking tension in the midst of deafening silence, I got these answers:

*"Sorry, Sir. We know you were doing your best and we understood the discussion but when we do it on our own, we could hardly do it.""You're too fast sir and the topic changed daily.""We forgot how to do it."*

*"We were confused on the process."*

*"It's only easy when you are with us."*

Hearing those answers, I mellowed down my feeling of disgust. I was trying to explain that mathematics is about discipline which demands diligence and perseverance in difficulties. Must this be the real meaning of mathematics, a set of challenges? Despite the frustrations I had, I became more internally motivated in planning varied teaching strategies. I even sometimes ended up dreaming and waking up with the teaching and learning process, the strategies I need to employ in the lesson such that I could maximize the involvement of my students. My day-to-day experiences with my students honed my skill in classroom management that I gradually developed certain degree of understanding of the learning process. I tried to slow down in my explanation. I tried to develop strategies that require students to discover on their own. I tried preparing group activities where students can work with others in solving problems instead of individual drills though it was more motivated in competition. Retracting the picture of the class I created, a great dose of technical interest is apparent. The focus on drill-oriented approach, mastery of demonstrated patterns and the forcing of doing the assignment obviously attached that I wanted to control my students so that the intended product, the directly quantifiable answers and examination result, can be achieved (Grundy, 1987). The discipline, requiring all students to pay attention to the discussion and losing of my temper in inattentiveness of students, must be a manifestation of my fear of losing control and management of the learning environment (Grundy, 1987) which I presuppose will ultimately attain the

objectives I have set all by myself. Maintaining the knowledge objects , the mathematics content, procedures, rules, laws, postulates, and theorems as truth of mathematical knowledge, I have castigated the teaching and learning in the extensive use of drills. It might be that my own learning experiences form into a belief in the virtue of drill as a tool for learning mathematics. Drill, as Scott (1972) explains, is based on the law of repetition holding an inane premise: "If something is repeated sufficiently, it will become branded into the mind forever" (p.28). It is holding the rational that some mathematical skills are habituated through repetition. Apparently I have found myself loading students with sets of exercises for them to practice and repeat the processes demonstrated. I am trying to hope that through drills students will be able to discover the patterns of the process.

> *I can always remember how my students complaint of the number of exercises given to them every after the class. I always prepare worksheets that serve as assignment mostly containing 10 items at the least and that's every day. My students' usual reaction is "this is too much". So I say "If I won't give you this sheet you will not be forced to study our lesson. It is only in doing your assignment at your own that you'll be able to achieve mastery of the concept". Most often most of my students come to class with only a few answers. I always end up asking them "What's wrong?"*

The teaching of mathematics is being equated to drills of mechanical skills that will likely to take place in the exam. Most often teachers drill students to prepare them in passing examination, even the award winning teacher whose reputation is tagged on the performance of students in the exam focuses on drilling students on the mathematical concepts covered in the examination (Herman, 1992). It must be that students have been anxious about the performance in the mathematics, getting the

correct answer out of following procedures, for they are worried about their grades. Just as I am anxious about the scores of my students in the exam for it serves as an indicator of my effectiveness. It is likely that my students and I are having individual concerns in the teaching-learning of mathematics. It seems that learning mathematics and teaching of mathematics are commodities that both the students and I are the consumers. Must this be the reason that denies students and teachers to make sense of mathematics as it relates to the real world? Must this be the reason that students alienate themselves from learning of mathematics in its real relevance to their lives and from actively taking effort to think what they are doing, to create knowledge in their own? Must this be the reason that I continually fail to see the real meaning of teaching mathematics as it contribute to my students' preparedness in real endeavor beyond school? Yet, I have never realized altering mathematics learning into performing a number of exercises of algorithmic patterns making mathematics teaching unproductive, dull, and imaginative. Instead, Scott further explains mathematics is thoughtful, logical cognitive endeavor though admittedly some mathematical tasks are relatively routinely. However, the claim for transfer of learning in the habituation of mathematical skills is still a failure. In the case that students have made a good deal of practice on a mathematical procedure and then gain some form of familiarity, I have assumed for students' mastery. But then when asked to perform tasks that require a different mechanical task, noticeably students are unable to derive and make use of those principles that drills are intended to draw out in overcoming difficulty of a new task. In this light, mathematical competency is more developed not through memorization and drill, but through analytic procedures (Scott, 1972).

Scott suggests learning of mathematics as experience instead of drill and repetition. Drill by nature carries the notion of repetition of the same thing, otherwise transfer of learning is likely not possible. While the notion of learning as experience bears the nature of change in which students are introduced to the concept and the relation of that concept to other concepts in a variety of ways. Thus, learning a new concept through experience becomes part of the growing structure of interrelated concepts. The real learning as experience necessitates creative structure of mathematical interaction between the students and the learning environment. Dienes (1972) points out that the teacher in this context must learn to be less authoritative which means letting the authority of the truth of students' mathematical knowledge to take place and not one's authority. For students to generate knowledge out of the inquiry, the teacher should not provide the answers but the situation which the students undertake. Knowledge as a mathematical truth must be drawn out from the set up situation rather than teachers to authoritatively state. Learning then becomes a thoughtful, analytical experience. The overlooked cry of my students on the speed of the class presentation, unclear concepts, unsettled confusion, and difficulty suggest that I was not at all looking after the learning of the students but on the coverage of the syllabus designed in the curriculum. To think what then if I could cover the syllabus what merit does await. Am I teaching for the completion of syllabus or for my students? This must be the consequence why students have low retention of the concepts presented and thus fail to perform independently. What turns out to be crucial was that I turned oblivious of the differences of my students and that I must have only catered the few and left out the rest. The over emphasis on competition in giving the correct answer could have caused the others to lag behind and all the more hampered them to perform on the manner they can show learning. When students

recognized that the lesson was just easy when I was with them might have meant that they had never fully understood the concept at all rather only the procedure might be because that's what all I wanted – an answer. It then turned so apparent that technical interest strongly influenced my teaching.

Bruner (1986, p. 72) stresses "We teach subjects not to teach students living libraries on the subject, but rather to get a student to think mathematically for himself…to take part in the process of knowledge –getting. Knowledge is a process not a product". Mathematics teaching must provide, therefore, the environment where students are able to consolidate their thinking, to reflect on the mathematical tasks that lead them to draw out conceptual understanding for them, and to be able to clarify their thinking and conceptions. When mathematical tasks are designed to explore students' thinking and not a mere following of procedures illustrated in teachers' examples of mechanical drill approach, they are able to construct knowledge on their own. It is in this context, students are likely to make personal connections to the new concepts in the mathematics class. This personal connection that students are going to establish implies that knowledge is not an object to be passively received rather actively constructed in the process of exploring their existing knowledge.

How can mathematics teaching help students to think mathematically if learning is equated to solving mathematical problems aimed at solving the right answer using single method? It turns out that mathematical knowledge is the product of drill exercises. However, drill should not be used to hasten the achievement of results at the sacrifice of meaning and understanding. This invites teacher move away from making mathematical knowledge congruent to memorization of procedures that rather fosters mathematical reasoning.

> *I did not see before how my classmates were going in the mathematics class and they coped with the task of our teachers who had always emphasized individual rills emphasizing speed. It is the same reality that I fail to see my students, their individual needs, apprehensions in my class. Why am I spending a 40 minutes straight make-up class so focused covering the content through fast drills? Now I can see faces of those students who needed attention, a chance to learn, and equal opportunity to learn with those considered "fast learners".*

Looking back, I found it plausible that I was not wholly driven by technical interest in teaching. My attempt of inquiring what's wrong with my class and the open discussion I made with my students suggest a positive move of understanding the situation, a practical interest (Grundy, 1987). I apprehensively sought for answers to the problem directly from my students so that we could create a healthy learning environment that would attend to everyone's need. This must be the reason why I was unceasingly trying to employ varied teaching strategies and approaches to respond to the situation. I try to embrace a refinement of my teaching (Henderson & Kesson, 2004) just to respond to the students needs and bring understanding.

There was always an urging "must do" for me not to fail as teacher. I was all directed to a thought that achieving high in class would imply that they will do better in the rest of their endeavor. All I wanted is for my students to realize that mathematics was not at all a matter of computation instead a means of developing oneself and a preparation for life. Nonetheless, I know deep inside me is a teacher who has not emerged from oneself to the fullest. I know that there are still aspects of the teaching and learning process that my students and I need to understand and equally share the role, to make sense how all the designed learning activities

contribute to one's being. There is awareness that I don't still have my own control of my own practices just as my students don't have a real control of learning. It is through embracing praxis (Henderson & Kenson, 2004) that will guide my teaching practices against social injustices students might experience in the mathematics classroom. With this, question on my pedagogical practices arise. Have I let my students equally take role in the construction of knowledge? Have I fully empowered them in their learning? Have I freed myself from taking the blame at the failure of the teaching and learning process? What pedagogical practices should I employ to take effect learning as socially constructed? Have I obstructed my students' unique demonstration of learning? Are they empowered in the assessment practices I employed? I certainly believe that students to be fully empowered, they must actively engage in the process of learning with a deep reflection of their learning. It is only true reflection that students recognize the significance in learning mathematics; thus, failure and low performance would be minimized. My passion in teaching has incessantly deepened every time I see my students' smiles despite the intricacies of the mathematical concepts. In their eyes is the tacit will of learning mathematics which I know they could utilize given the right learning environment to explore their skills. I strongly believe that my

*An ideal teacher is the one we respect from students' heart. He/she acts as a guide to the students, motivates them and boosts their moral. He/she tries to encourage the students and refrains from criticizing them. The perfect teacher prefers to give positive motivation to his/her students. His/her comments are always constructive in nature. He/she serves as friend; guide, confidante, and a combined mix of the entire good qualities one can posses. If everyone in this world gets an ideal teacher, he/she won't have to look back in his/her life ever. The ideal teacher is a problem solver; he/she understands the students' psychology, and is a good guide, and a motivator.*

students can do mathematics and it is this belief that will continuously challenge my practice through relationship with my students.

## Chapter Summary

In this chapter, I have discussed different influential beliefs as teacher about mathematics teaching, beliefs of teaching mathematics in my own cultural condition and its impact on the relationship with students. In this chapter, I have represented my earlier beliefs towards mathematics and its impact upon conceptual mathematical teaching to have a better relationship with teacher and students in mathematics classes. Furthermore, I discussed how I developed relationship with student. This chapter utilized the lens of my own lived experience as a teacher from home to university in developing different forms of relationship (cold, warm and cordial).

# CHAPTER VI

# MY VISION IN CURRICULUM TO DEVELOP CORDIAL RELATIONSHIP

## Chapter Overview

In chapters IV and V, I analyzed my teaching learning practices in various perspectives in different form of relationship in mathematics learning and teaching. I have discussed my experience of teaching and learning of mathematics and pedagogical transformation after entering School of Education at KU. I have tried to explore how a novice teacher educator and novice researcher transformed his belief, attitudes and practices of educative process from a traditional approach towards constructivist and post modernist approach to develop cordial relationship. Also, I have presented dialectical relationship of mathematics teaching from students and teacher perception to address my third research question "How do different approaches in teaching enable me to develop cordial relationship with students?" Bringing the ideas of Luitel (2009), I write a letter to Curriculum developer and I have presented one lesson plan addressing to curriculum at the end of this chapter.

My purpose here is to share my own teaching and learning experiences in response to my auto ethnographic genre of writing as research and learning. In doing so, it is important for me to note that my experiences have been generated in a teaching and learning context of collegial activity characterized by shared belief in holistic approaches to learning, as well as by team collaboration, lots of discussion, mutual respect and support (Cadman, 2002). The learning environment in KU has been extremely influential on my work with students fostering the practice of constructivism in classroom practices from the university to schools. I have depicted

here my joining to KU and what practices and beliefs have been transformed within my educative process.

I was conditioned to follow a behaviorist approach in the classroom teaching and learning. I thought myself as a good teacher and tried to do very good in the classroom teaching by lecture and solving a few problems but my eyes opened when I joined School of Education. This school really became a new avenue in my journey from where I learnt about constructivism and its application in the classroom teaching and learning to develop cordial relationship with students.

**Vision: Who are Teachers…?**

*It's a great probability to compare teacher with other profession. We human beings adopt different professions in our society. The professions can be chosen according to our need, interest and confidence. In the context of Nepal, people evaluate the professions in terms of earning, security of job and confidentiality. A doctor earns much money with great personality then engineer but a teacher does not earn that much money. It's the reason why people do not give as much respect to the teachers' job and teachers as they give to the doctors or engineers. The role played by the teachers is more significant than the role played by other professionals because the teachers are working in every corner of the country where doctors, engineers and lawyers have never reached to such areas.*

*In terms of role, a teacher has many faceted roles; to actively promote inclusion, equality and diversity; to create a safe learning environment for all students; to work within the legislative requirements and codes of practice. Teachers typically do not think of themselves as role models, however, unintentionally they are. Students spend a great deal of time with their teacher*

*and therefore, the teacher becomes a role model for them. This can be a positive or negative effect depending on the teacher. Teachers are there not only to teach the children, but also to love and care them. Teachers are typically highly respected by their parents in the community and therefore become role models to students and parents so there should be always positive relationship with teacher and students in the learning process. Mentoring is a natural role taken by teachers, whether it is intentional or not. This again can have positive or negative effects on children. Mentoring is a way a teacher encourages students to strive to be the best they can. This also includes encouraging students to enjoy learning with better relationship with their teachers.*

*Part of mentoring consists of listening to students. By taking time to listen to what students say, teachers impart to students a sense of ownership in the classroom. This helps build their confidence and helps them want to be successful. I believe that teacher should also be someone who guides student rather than someone who is an authoritarian in the classroom. The teacher needs to show respect towards the students so the students also respect the teacher. The teacher must not forget that s/he teaches different students who bring different cultures, traditions and customs because the students come from different backgrounds.*

*On other hand, technicians work from the assumptions that tell them what to do. Technicians have a script which they follow. They identify a problem or situation and search for someone who knows what to do or can provide explicit steps that tell them how to proceed. Everything depends on accuracy and precision. Technicians are different from teachers. They don't*

*need to be concerned about individual differences among patients, their perceptions of what is happening to them, or how to interpret. They don't have to make complex decisions based on a broad base of knowledge and experience. Doctors, on the other hand, are professionals. They not only understand the need for specific procedures; they know how to interpret results, make decisions based on what they find, and know how to explain what is happening to their patients. Doctors have a powerful foundational base grounded in how the body functions, is interconnected, and how symptoms are related but more than the role of doctor, the teachers' role is important, the doctors only care the patients for a short time but teachers have to care more. Over the past decade, teachers have been largely trained as technicians. The teachers have important role than the doctors, engineers, lawyers because they all are the product of teachers since they are all taught by teachers. A medical or law or engineering student should take a class from a teacher educator.*

My teacher listens to me when I talk.
My teacher helps me when I need help.

My teacher respects me.
My teacher likes having me in this class.
My teacher makes it fun to be in this class.
My teacher thinks I do a good job in this class.

My teacher is fair to me.

*I think the importance of a teacher's role as educator and researcher to mere problem solver is that teachers need to think about what the students' feeling are. As a teacher, one good way to do this is to look back in our school years and remember what we went through when we were students. We will realize that most of the kids have problems with their teachers. I do not believe that there are students who have not encountered a problem with any of their*

*teachers. Therefore, I do not think there is a perfect relationship between teachers and students. This implies that a teacher's priority should only be on the benefit of the student's feelings.*

*Comparing to the role of technicians and clinicians, the teachers have some crucial roles to play. The technicians only solve the immediate problems in immediate time but the teachers are not merely the problem solvers rather they are the facilitators and on top of that they are the motivators of the students for better generation. I also believe that as a researcher the teacher has to find out new methods according to the situation and need of the time and modify their practices and provide much more time for students to develop new ideas. They need to motivate the students for learning and make them positive thinkers with lots of positive works. In this way, teachers play important role in the reformation of the society from the school area. We can get lots of opportunities in the field of teaching and if the teachers are not known to those things then the students can't be satisfied with them. The technicians and clinicians are also the professionals but they can change their work anytime. They don't hold the responsibility of reforming the society instead they just solve the immediate problems so the role of the teachers is more important than the role of technicians and clinicians.*

**Curriculum as Ratification of Absolutism: An Inquiry**

10th April, 2012

T o

The Director

Curriculum Department Centre,

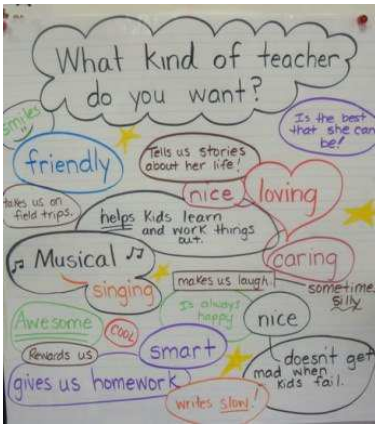
Head Office, Kathmandu, Nepal

Dear Director:

You may get surprised getting this letter from a new/an unidentified person and ignore it.

I want to take you back to the beginning of the year 2009 A.D. probably you were the curriculum officer at that time. My facilitator Bal Chandra Luitel had also sent a letter and in a similar fashion, my senior batch student Kamal Bahadur Khatri had also sent you a letter in end of 2012.I hope you might have gone through, if not, please go through it once. I remind you this letter is sequel of Luitel (2009) and Khatri (2012). I homily request you to respond it honestly. I hope this letter to some extent could be a useful paper related to your project. I unfold the reason through this letter why they sent you that letters and why I'm also sending this letter. I heard from some reliable sources that your office is going to reorganize or restructure our school curriculum very soon as you had done before more than a decade. It's me a secondary school mathematics teacher teaching for more 7 years and currently involved in a research project in an alternative university for my master degree. I am doing a research in 'Teacher-Students relationship and its potential impact on learning' or I'm seeking for alternative perspective. During my learning and involvement in my research project, I am stimulated to alternative approach of teaching and learning to understand students in different forms to develop the nation. I think, curriculum is a

key document to direct our educational endeavor and it is almost no possibility to meet you and have direct conversation. So this letter has come up to resolve my problems easily, with messages to be incorporated in our curriculum for transformative learning towards social justice, empowerment and inclusiveness. I think, somehow, it is a suggestion, you may think a proposal, which may help you to convert your restructuring planning to reformation planning. I would like to clarify you that I have incorporated letter. In the first letter, I have discussed our traditional image of curriculum through my experience as a mathematics learner, mathematics teacher and novice researcher. I have attempted to give you some helpful ideas for reformative of curriculum for future generation to understand the need of teacher-students while teaching and learning mathematics.




Source: https://www.facebook.com/WeAreTeachers

Yours sincerely,

Niroj Dahal

2011 Feb. Batch

Kathmandu University

School of Education

**Powerless Students and Controlling Curriculum: The Relationship**

Dear Curriculum Director,

I have extended my personal views about the curriculum development addressing powerless students in the classroom that students become unattractive, teacher keep on controlling and dominating in the classroom in his/her ways. Students seem to be listening passively to the teacher without any attraction and cross question.

I assure you that it's just my personal view. I am including the curriculum which I have been practicing since I was a student to date as a teacher in our classroom using three metaphors given by Schubert (1986) curriculum *as content or subject matter and curriculum as discrete task and concept, curriculum as intended learning outcomes*. There as on for taking these issue in this chapter to explore how past and present curriculum of Nepal has appeared as teacher dominating classroom, silence, un-inactive students (Luitel, 2003, 2009) and environment of teaching and learning. With such a curriculum, how will the relationship between teacher and student develop? In my opinion, the use of metaphorical thinking in my pedagogical practice describes my past and present beliefs about the nature of mathematics and my classroom practices with students, teachers and even researcher.

In this letter I'm extending my opinion about our teaching and learning activities within the boundary of school walls, under the full control of school administration and under the teacher's perception and desire. Have you ever visited such authoritarian school setting where students have nothing to do with them, everything is controlled by outside and students feel horror? I remembered my friend leave his schooling being unfit with his teacher's interest. There are many such students, from my experience, who drop out from their schools due to anxiety, especially in mathematics. You might have heard from the Nepalese media that a number of students attempts suicide because of their failure in examinations?

Amit and Fried (2002) revealed in their research that dissatisfaction grew from students leaving school with only minimal mathematical knowledge and skills, a dramatic decrease in the number of individuals desiring to pursue mathematically oriented careers, and, perhaps most relevant in today's high stakes accountability culture, students poor performances on standardized tests. Don't you think that one or

sole of the major causes and responsibility for creating such environment is due to our curriculum direction and control? If you have a time to think on, please think for a while, what sort of future generation we are going to prepare for future?

Reviewing my learning days, I always feared teachers' unhelpful behavior, principal's authoritarian school rules and repeated standardized test for evaluation to explore from my learning and teaching journey. I try to appraise past and present school curriculum of Nepal through some metaphorical images I constructed from my experience along with the metaphors as discussed by Schubert (1986). According to Willison and Taylor (2006), metaphorical thinking promotes open and embodied inquiry for exploring multiple facets of knowledge and knowing by making use of images and imageries.

My approach and understanding of curriculum as a mathematics teacher is/was very narrow. Policies and objectives also have been determined in accordance with our curriculum. Particularly, mathematics teacher must understand its approach of teaching to fulfill the desired objectives of the curriculum. As a teacher, I have heard that curriculum is our legal document for instruction on how, when, what to teach but throughout my journey of learning and teaching I have not read it yet. At the time probably for me the image of curriculum was that content of subject matter. I think that a teacher was a source of knowledge; students were powerless entities of the classroom or school. My role was to transmit knowledge by defining the problem, solving the algorithm, proving the theorem by rote memorizing via strongly endorsed role as a controller.

Dear curriculum director, do you think that this type of curriculum to promotes the teaching, learning activities in friendly environment. How can we make our students self empowered, independent, critical and creative learners and teacher a

thinker? I hope that you will not erase my critical viewpoints regarding these curriculum images thereby taking a serious action to change our curriculum to develop a cordial teacher-students relationship in learning.

**Transformative Vision on Curriculum: Reciprocal relationship oriented**

Dear curriculum director, viewing back to the past as a learner and novice teacher, I found that my practices were shaped oriented as three curriculum metaphors; curriculum *as content or subject matter, curriculum as discrete task and concept, curriculum as intended learning outcomes* learning coined by Schubert (1986) which limited my learning and teaching within text, textbook, classroom, efficiency test promoting the view of teacher as transmitter of knowledge , students are the receptor, curriculum as the table of contents, teaching is knowledge transmitting, they isolating me and my students from world of choice and freedom of democratic classroom practices. I am inspired by this curriculum vision thereby making myself to think critically about my past days as meaningless practices accordingly.

The design of curriculum as pluralism makes me sense that curriculum is not single culture and nonlinguistic practice. It also makes me sense that curriculum is not only the numeracy and literacy; it is a self-esteem and autonomy for a marginalized community. Another transformative vision *curriculum as montage* helped me to envision curriculum as a cluster of all cultural, political, personal, societal relationship. According to (Luitel, 2009) the *curriculum as montage* image is likely to be helpful for mathematics education to become inclusive of conceptual, personal, cultural, experiential, critical, imaginative and contextual dimensions of knowledge and knowing. This image of curriculum helped to develop my image of *curriculum as cluster* to empower inclusive vision of curriculum.

Schubert's (1986) curriculum images as *curriculum as experience*, *curriculum as social reconstruction* and *curriculum as currere*, I have developed my vision of curriculum towards the transformative mode. Curriculum as experience portrays students' centered teaching practices thereby emphasizing students' experiences and reflection as key elements in the curriculum designing and in the process of integration.

I depict how transformative vision helps to develop curriculum vision from different perspective to understand the need of teachers and students. Transformative learning involves experiencing a deep, structural shift in basic premises of thought, feelings and actions. It is a shift in consciousness that dramatically and permanently alters our way of being in the world. According to O'Sullivan (2002),transformative learning makes us and our students productive, creative, ethical and engaged citizens and leaders contributing to the intellectual, cultural, economic and social advancement of the communities they serve. Hence, I conclude my transformation vision of curriculum shifting from objective paradigm of teaching to the paradigm of constructivism to understand the all round development.

**My Vision on Lesson Plan**

*As a novice teacher, I decided to implement constructivist approach of teaching learning environment in my traditional classroom hoping that to some extent it can reduce distance between teacher and students. So, I first prepared a lesson plan which I have given here:*

| ***Lesson Plan*** | | |
|---|---|---|
| ***Subject:*** *C. Mathematics* | ***Topic:*** *Mensuration* | ***Time:*** *10:00-10:45* |
| ***Teacher:*** *Niroj Dahal* | ***Grade:*** *IX* | ***Date:*** *26th Nov.2011* |
| ***Material Required:*** *Measuring Tape, Pencil, paper* | | |
| ***New Vocabulary:*** *Ceiling, Floor.**TSA*** | | |
| ***Learning Objectives:*** | | |
| ***i)*** *Students will be able to find the area of floor, ceiling and four walls by measuring.* | | |

***ii)*** *Students will be able to establish the relationship of finding the area of floor, ceiling and four walls.*

***Aim:***

*After the completion of this topic, students will be able to apply the gained skill in their real life problems i.e. student may be able to even find the area of books, copies etc.*

***Motivational Activities****: First students are given an unrelated problem like suppose a room has 9m by 4m dimension, what should be its length and breadth so that it becomes a square room?*

1) ***Engage****: In this session Students are made to concentrate by asking some questions related to the topic like, how many rooms are there at your home? What type of carpet is there paved in the floor of your room? Who bought the carpet? How much did it cost? Do you know how much you need to pay to a painter if you asked to paint the four walls of your room?*
2) ***Explore****: In this session, I will divide students into four groups then they will be instructed about their works and students will be sent out to measure the length, breadth, height of one room of the building. I will help them in any difficulties if encountered.*
3) ***Explain:*** *In this stage, students are requested to discuss in their respective groups or with other groups about their collected data. They are guided to discuss the shape of each face and to find the area of each face.*
1) ***Elaborate:*** *In this section, students will elaborate some more about the topic like there are six faces in a rectangular room which is like cuboids where there are 6 faces and opposite faces are equal. So I will motivate them to find the total area by using the relation 2(lb+ lh + bh). They will explain themselves how to find the area of carpet required to carpet in their room and finding the area of four walls.*
2) ***Evaluate****: Here first students' data are evaluated and they are asked to find the area of the room from the data by exchanging with other groups. Here students themselves get an opportunity to evaluate their observation and conclusion.*

***Home Assignment:***

*1. Find the area of the floor and four walls of your room. Then go to the market and find the cost required to carpet your room.*

*2. Write a short essay on today's classroom activities.*

***Outcome of this approach:*** *Really this approach was different from what I used to use in our pedagogy. I found some positive as well as negative impact of this approach. When I applied my lesson plan in the classroom most of the students were found very eager, curious, interested .Especially those students who almost used to sit in the class in the motionless manner, were actively participating in the group work. Most of the students found to have more responsibility in their exploration. Many students were enjoying themselves, on the day they felt that they were not doing mathematics but teacher has given them free time for getting rid of mathematics. This meant they actually participated in their project. When I suggested them to find the area of the four walls and floor they realized how to find area of the room and its walls. When I assigned their assignment they were much interested in doing that work. But at the same time, I found some difficulties in the classroom. The number of students was 44 so managing them in group and involve them in their work was quite challenging. Some students were not engaged but just roaming here and there. Time framework was not supporting to complete the work within the specified period. Many of other teachers and school administration team were found uneasy about our work.*

***Conclusion:*** *Though constructivist approach of teaching and learning in our context is challenging for its implementation due to our chronic system in education, nevertheless as a teacher I found that this approach will be much effective and meaningful in teaching mathematics which can bring a radical change in the system. Before this, a rapid change of traditional methodology along with psychology of students, teachers, principals and policymaker as well as whole curriculum based on traditional system should be changed believing that frustration created by mathematics due to traditional system of teaching learning activities can be addressed if we apply constructivists approach of learning.*

Doing this self-study has provided me insights, knowledge and experiences on how I can improve my classroom practices especially practices geared towards constructivist teaching and learning. In this journey, I came to realize that knowledge is not static and thus continuously evolving. Opening my eyes to new possibilities of

knowing (inspiration, intuition, analogy/metaphor) (Fleener, 2004) was also a way of making me reflect on my pedagogical practices – teaching and learning practices which have always been governed by the established and proven, per se, ways of acquiring knowledge and doing things in a classroom. There were instances in this journey that I have felt a sense of guilt. I remembered the days when I have felt teaching was just a way of passing knowledge found on books to my students, days when memorizing facts and rules was more important than making the students experience learning which might have helped them make sense of what they learn in my classroom. However, it is never too late. Learning is a journey and along the journey I picked up bits and pieces of experiences which I can weave and which help me envision my classroom. As my writing evolved, I came to understand that culture of classroom plays a vital role in promoting a constructivist informed curriculum and classroom practices. With this, I envisage a classroom where my students use their local knowledge (contextual), such as their culture, beliefs, traditions, in concert with global (Western) knowledge in understanding the environment and in making sense of the world around them (Brickhouse & Kittleson, 2006). However, it will also be a classroom where students are made to realize that through mathematics and mathematics education can bring prosperity, it can also bring annihilation depending on whose interest is being served (Beane, 1995). I believe that such type of classroom might help develop responsible decision makers and students who will see mathematics as a means of understanding the inclusivity of both knowledge systems in attaining better lives on earth (Jardine, 1998). As a teacher educator, perhaps one way of encouraging the new breed of teachers in promoting this type of classroom is by giving them the chance to reflect on their practices as students and as teachers (Afonso, 2000). Perhaps encouraging them to consider the new perspectives in doing

educational research will be a stepping stone in improving their views towards their practice.

## Windows of Possibilities

In the first part of this project, I clearly emphasized that this self-study research embraces the interpretive paradigm. However, the inclusion of my critical reflection at the end of each narrative, although this does not hold true throughout the chapters, where I infuse a bit of ideology critique (Brookfield, 2000), has added a 'touch' of critical paradigm to this inquiry. Whilst being able to present my data text in multiple genres is made possible by taking on constructive postmodern approach.

These three paradigms helped me weaved my experiences and present them in an unconventional manner, yet, in a very powerful way. As a true depiction in doing this type of research, one cannot be certain of the multiple realities that might emerge along the process of writing. At times it may reveal result other than what the researcher has expected to find and oftentimes interpretation of this result will depend on the readers. Hence, nearing to an end I am compelled to ask: Was I able to provide adequate opportunities for transferability? Was I able to captivate your thoughts? Were my experiences represented somehow similar experiences of yours? In other words, have I engaged you to the act of pedagogical thoughtfulness? In this project, I have touched on language and cultural issues of the mathematics curriculum in the Nepali context but not at a great length. I believe that these issues deserve much more attention and further educational research.

## Chapter Summary

In this chapter, I have brought the supremacy (power) of the teacher centered and subject centered curriculum with its impact on teaching and learning mathematics using my critical inquiry to some extend how to development cordial relationship with

teacher and students in Mathematics learning. In the last part of this chapter, I have developed a transformative curriculum vision with one lesson plan which was implemented in classroom to address student's voice.

# CHAPTER VII

# MY JOURNEY NOT ENDED HERE

## Chapter Overview

> *At some distance down this conjectural path, when its history is written, we will find that it has been an era of emancipation: emancipation from what Hannah Arendt calls "the coerciveness of the truth", emancipation from hearing only the voices of Western Europe, emancipation from generation of silence, and emancipation from seeing the world in one color.*
>
> *(Lincoln, Lynham & Guba 2012, p.125)*

This chapter is focused on conclusions that emerged from a qualitative method of study. The purpose of the study was to provide a more in-depth understanding of the dynamics and importance of the student-teacher relationship in the mathematics classroom and its impact on learning. The phase of this study included the settings of different classrooms and schools as well as discussions of student achievement and data text measured as lived experience from childhood to graduate level as student/teacher/facilitator, teacher educator and educational researcher. Moreover, in this chapter, I have recalled all activities from the initial stage to the final stage of preparing this document to represent my ways and final product of this research including my pedagogical shift, implication and windows of possibilities. In some extend, I have left some questions for your (reader) response.

## Research in Dilemma

It is my first experience to write a research report. But before I had heard that thesis work is not a great job to finish in time and to score good grade in the exam

because everything is done. I joined in KU for my master program in Mathematics Education in the beginning of 2011.In the third/fourth semester; I got great chance to have research classes with Bal Sir, a renowned researcher in qualitative research paradigm with award of Youth Scientist. His ideology inspired me on the field of multi-paradigm research. In similar fashion, I initially started my ways of research project in multi-paradigm research design to explore my educative journey in different forms of relationship with teacher and students.

My enrolled to KU appeared as a new path for my knowledge and knowing the world from my perspective and from my nodal moment of life cycle thus offering new perspective of research and researching. Continuous inspiration, and marvelous guidance of lectures, facilitator of KU and a number of research articles, dissertation papers are key main sources for me to choose my inquiry in qualitative format.

After all, in this part, I have recapped my work thus searching its value of my research question within my inquiry, in the space of multi-paradigm research through critical/auto-ethnography. I still have a doubt how I can claim that my text rushed from my own foundation has been able to answer research question. How do I and others know that I have improved my pedagogical practices from my inquiry? Am I able to captivate my and others thought of transformation through my writing text? In some extend, to address such questions of my inquiry towards ways of doing and knowing, reflecting upon my research question and outlining ways for future research.

**Possible Shift**

Arriving at this stage, I have experienced few changes in my thinking, viewing, perceiving, and behaving including my teaching and learning after this project. I came to know that reformation and transformation of deep rooted mind set is not easy within a short period of time in my educational scene but I have been able

to join alternative approach as an end in the continuum of continue same frame in practices.

Here, my shift doesn't necessarily mean complete transformation in my practice; to me it is my commencing of transformation. I do not mean totally deleting, erasing or neglecting our long rooted practices, which is not easy and possible to do within a short time and with little effort. Context is the key factor to enhance the students learning. Learning occurs by the interaction between teacher, students, society and other culture phenomena. Knowledge and knowing is different from to person and time to time and place to place. I hold this view that knowledge is to understand the environment and to make the sense of the world around us.

**Context, Construction and Reflection of my Research Questions**

At the instance of lettering my dissertation proposal, there was a dilemma of choosing my proposal heading. But when I discussed with Bal sir about the assortment of my research topic and research questions, he advised me to selecting any remarkable events or issues or problems.

So, I started recollecting my past and present critical movement about my practices in educational setting which became the source of my educational research questions. My research questions have history of my life. So, I went back to my past life and seeking for the critical movement in wagon of life. How my mathematics teacher treated, his/her behaviors towards me? And choose the nodel movement of landscape of my memory of teaching and learning. To address my research questions, I have displayed different genres such as dialogue, narrative, metaphors as data text of my research.

I used to feel that teachers are the heavenly figures (as student and teacher till the date) and in all aspects they are right to impose their rule. My five years study at

campus level added more complexity in perceiving, practicing and performing mathematics and my relationship in different forms. Teachers' oppressive and intangible explanation, students' pulling out, failure and anxiety with terrifying notions of mathematics led me to generate my first research question from the perspective of students.

**My first research question** *"How have possibly my relationships with my mathematics teacher facilitated and restrained my learning as a student?*

To address this research question, I have used different narratives (poem, fiction, pictures etc) from my educative journey as mathematics learner it could address my question to some extent. Learners might be thinking my document to be only collection of reflection of my past but I feel free to say, it was real lived experience of my life as student at different levels. In similar fashion, I have used narrative like "*My Childhood Forming Relationship as Socializing process", "Relationship Matter", "My Journey as Mathematics Students", "One Idiom", "Was Mr. Lamichhane Good Facilitator?", "Transmission of Knowledge from head to head to head, Is that Learning?", "Learning in New Scenario", "My Relationship with English".* And different poetic logic to explore my first research question.

This basically portrays my struggle of learning mathematics in secondary and bachelor level. The main assumption of reflecting these texts is to posture my learning setting in different from of relationship. Thus, I think my explanation based on my learning experience allows me to put my learning journey in support.

**My second research question**: *How have I developed the relationship with my students?*

To address this research question, I wagon nodel movement of reflecting my teaching career. My teaching career began in 2006 A.D. from a government school of

remote area of Nepal (Dolakha). Continuing the same ways of teaching mathematics of my senior teacher, I accomplished what I was taught in my student's life. As a mathematics teacher in government school, I employed my despotic rule, I used to believe that me as a teacher is the supreme person in the classroom, my decision is ultimate, my approach of teaching is unalterable, make students able to pass in the examination. I admired in my classroom to fulfill the interest of myself, school heads and most of the parents too.

To address my second research question I used narrative like "*Being in School:"Am I Luti?"", "My Journey as a Novice Mathematics Teacher in Government School",* and different episode, finally "*As a Novice Teacher in Private School"*. How I treated them in teaching process? What short of relationship existing with teacher (me) and Students?

Even of hard labor of teacher (me) and students, still I feel tension, why students feel mathematics as hard subject than other subjects? Why there is gap between teacher and students with high anxiety in mathematics. Roaming this question on my mind, I enrolled in KU in the beginning of 2011 A.D. seeking the answer of my above questions. I was inspired into new insight in my educative journey. The word constructivism and collaboration of teaching attracted me to heal my useless pedagogical practices.

I got 'U' turned in my pedagogical practices which help me to understand the needs, feelings while teaching mathematics.

**My third research question:** *How do different approaches of teaching enable me to develop cordial relationship with students?*

To address this research question, first I wrote a un/helpful letter to the curriculum director and secondly I made my own curriculum document constructing

through social constructivism approaches , where a semi fictive letter writing addressing to curriculum director. I have used Schubert's three curriculum metaphors; curriculum as subject matter, curriculum as intended learning outcomes and curriculum as discrete task and concept. In similar fashion, I have used Luitel's curriculum image as culture free text, text as disempowering images of curriculum to critique the curriculum characterized by our traditional paradigm of teaching.

Stimulating from the Luitel's curriculum as montage in the second part of letter I have envisioned a vision of curriculum from integral perspective (Settelmaier & Taylor, 2003) as *cluster*. I have used Schubert's curriculum image as curriculum as experience, curriculum as currere, curriculum as an agenda for social reconstruction to support my vision of curriculum towards constructivist frame how to develop the cordial relationship between teacher, students and through curriculum.

## Implications

I hope, my research project is not highly extremely implacable for all to all. On other hand, it can offer some insights to the readers, novice teachers, novice teacher trainers and novice researchers. I don't claim that I have used very ironic referents in my research but some of the metaphor of curriculum metaphors for the inclusive pedagogy. I have used constructivist ideology which could be some empowering referents to the future generation. I think my narrative, fictions, biography, and reflection as an auto-ethnographer can help others to make good their pain caused by the teacher centered pedagogy for better understanding and developing a cordial teacher-students relationship.

## Future Direction and Possibilities

Before the nearest to the end of this research project, I come to realize my project is my first foot print from initial stage of learning /teaching to endless

educative journey. I have faced many insightful ideas, vision on my educative practices especially to transformative learning, citizenship education and Moral Education about which I would not incorporate in this small sized project. Nevertheless, this project is a milestone in my pedagogical practices.

**Transformative Learning**

According to Taylor (2012) transformation in personal agency involves higher-order thinking-critical reflective thinking, metaphoric reasoning, dialectical thinking, and mindfulness, and spiritual awareness, poetic thinking, envisioning which concern about reform in educational setting. I have done a bit more about this topic to change (transfer) myself to transfer to gives some touch to my research topic. I have envisaged this topic as my future direction in the field of research to do something to transform myself and to transform others in this project.

**Citizenship Education**

The word citizenship education inspired me to explore the present scenario of the country. Citizenship education is teaching and learning, for all ages within and beyond schools helps to upgrade academic excellence. I hope that citizenship education is the education for addressing the notion that education is for all, lots of work is lift to be done so I choose this issue in my future possibility my research field.

**Moral Education**

Moral education in my research project is future possibilities because moral education for teachers and students help both the teachers and students to understand the importance of teachers and students, where we (teachers and students) should be self-starter and use our sense whiling teaching and learning mathematics. So, I take this issue as my future possibility in my research project.

**Responses (As Students and As Teacher)**

This discussion of the students' and teachers' responses to the revealed themes perhaps holds the most important implications of this study.

**Using sense of humor.** Conclusion showed that students value teachers who exhibit a caring sense of humor. Whether expressed though humorous stories of friends and family or through appropriate, well-intention jokes, this caring sense of humor conveys to students that their teachers are "'human' in the fullest sense of the word" (McEwan, 2002, p. 30; APA Work Group, 1997; McCombs & Whisler, 1997; Saul, 2005). School is concerned with more than achievement and test scores in every subject, instead with an environment where children can grow and develop. Moreover, it is a secure place for knowledge where students are surrounded by those who care and are willing to share of themselves.

**Consistent help (with high expectations) with students.** Students need to trust that their teachers are going to be there to help them when needed, but are going to do so while retaining high expectations for their students (Boals et al., 1990). This sense of trust with regard to a teacher's willingness to help was shown to be developed differently in each of the classrooms, but ultimately teachers need not only be available to assist, but also be seeking out students in need of help. The identification and addressing of student needs and the resulting trust that is developed can contribute to students' academic success (Lee, 2007; Hughes, 1999).

**Games for learning.** From my study, I knew that teachers need to make learning fun and upbeat in their classrooms but this need to happen in such a way so that learning is indeed still taking place. Spontaneous and relatively simple games for reviewing concepts, such as a class "Quiz Bowl," when implemented at appropriate times, were most appreciated by students. The implementation of such a game or

activity at a particularly tedious time can breathe life into the most stagnant of environments. According to Frey and Wilhite (2005), who built upon the work of William Glasser, this “combination of laughing and learning can maximize the relationship that educators have with students.”

**Active listening.** Another implication deeply rooted in my different graders is the importance of teachers actively listening to their students. The school day can be extremely hectic and busy, yet students need to know that they are being heard. Active listening, such as getting down to the student’s level and maintaining eye contact, giving non–verbal feedback such as nodding, and responding appropriately, does not take much effort on the teacher’s part, yet goes a long way to help students feel appreciated, acknowledged, and respected (McCombs & Whisler, 1997). In addition to these general suggestions for actively listening to students, Faber and Mazlish (1995) also have some non-standard suggestions for responding to ensure that students leave the conversation feeling appreciated and that their teacher has understood. Beyond the basics of active listening, recommendations include the reflection of student comments, avoiding criticism or blame, and helping student arrive at a plan as opposed to suggesting solutions.

**Sense of belongingness.** It is important for teachers to help students experience a feeling of belongingness in their classrooms. According to Osterman (2000), when students feel that they belong, they are “more helping, more considerate of others, and more accepting of others, including those not in the friendship group” (p. 334). And Jensen (2009) author of *Teaching with Poverty in Mind* stated, “What you want to emphasize at school is moderate social status and group acceptance” (p. 90). He went on to emphasize the importance of developing a sense of community within the classroom stating, “Students who know, trust, and cooperate with one

another typically do better academically" (p. 92) and that students who "feel accepted, have sufficient social status, and maintain positive relationships."

**Encouragement.** Another suggestion that stems from my different narrative included how my teachers convey that they (the students) are doing a good job. The encouragement should be both spoken and written. The students interviewed in the study shared examples of teachers not only writing "Good job!" but also writing the "good" grade earned on top of particular assignments with accompanying smiley faces and notes which included specific compliments and encouragement. With regard to the written forms of encouragement that might be included on assignments and/or notes to students, Rath and Clifton (2005) proposed it as "most appreciated and effective when it is individualized, specific, and deserved" (p. 80).

**Focus on character instead of appearance.** The final theme revealed was to complete omission of any reference to their teachers' physical appearance or style. The implication of this result is perhaps more beneficial for administrators and human resource hiring officials than for teachers.

## Lessons Learned

Independent of one another, the different types of data and analyses have revealed some interesting results, but a more complete picture of the dynamics and importance of the student-teacher relationship are revealed in qualitative data analyzed. A broad, holistic analysis of the data resulted in several lessons learned, most notably on *how* student-teacher relationships play out in classrooms with students who have very positive perceptions of the relationships they share with their teachers, regardless of the socio-economic composition of the school. The first broad-stroke result was that students from both schools felt respected (My teacher respects me), valued (My teacher likes having me in this class), and appreciated for their

efforts (My teacher thinks I do a good job in this class) when their teachers explicitly told them so. Another important result was that students in both schools (rural and urban) shared favorable perceptions of their teachers' abilities to listen (My teacher listens carefully to me when I talk), support (My teacher helps me when I need help), and respect them (My teacher respects me) due to their teachers "being there" or more specifically, when teachers focused upon and attended to their students personally. The final broad-stroke of this study was that teachers may not have influence in all areas of students' lives, but the influence is most easily identified and acknowledged when teachers talked *with* their students and expressed specific care and concern about the different facets of the students' lives. In other words, these three results from my own perception underscored the students' desire and need for caring and personal relationships with their teachers.

*Before the nearest to the end, I would like to put some questions to myself, to my readers and researchers. Did my reflection speak about the issue of my research problem? Can my constructivism approach of teaching and learning be helpful to improve our educational practices to have a better relationship with teacher and student s? Was I able to capture you to the act of pedagogical thoughtfulness? Was I able to develop some insights regarding your pedagogical practices?*

**Final Reflections**

This study has shown the teacher-students relationship to be a dynamic factor in classrooms of both remote and urban schools in Nepal where Nepali mathematics teacher have not been able to link culture and knowledge. This study rated their teachers highly on student-teacher relationship factors assessed. These ratings revealed the level of value and appreciation students had for efforts on the part of their teachers to develop personal and deep relationships. Additionally, this study has shown to be a useful tool for capturing student

perceptions of the teacher-students relationship and allows for the monitoring and assessment of the resiliency factors, as well as personal reflection by teachers regarding student-teacher relationships within their classrooms as it brings to light areas in need of improvement as well as areas of strength. Beyond overall improvement of the culture of classrooms, the results of this study should target behaviors and attitudes teachers can focus upon to more effectively develop relationships with their students, as they strive to provide a supportive environment that is built upon high expectations, positive encouragement, and a healthy dose of humor. These same themes, which were valued by students, may also serve to assist administrators to more effectively hire teachers. In conclusion, student test scores, teacher accountability, and school rankings have taken the central stage in today's educational landscape. The need for on-going professional development through which teachers learn the latest research-based methods of instruction, as well as how to utilize the newest technologies is more important now than ever before. However, teachers must never overlook the importance of cultivating teacher-students relationships in their classrooms. Teacher-students relationships are built through purposeful and continual effort, primarily on the part of the teacher. It is in the relationship between teacher and student where learning takes root and begins to grow; and the degree to which a teacher invests in those interactions not only affects learning outcomes and student behavior in the classroom, but also potentially impacts each student's future achievements and success.

# REFERENCES

Amit, M., & Fried, M. N. (2002).Research, reform, and times of change. In L. D. English (Ed.), *Handbook of international research in mathematics education* (pp. 355-381). Mahwah, NJ: Erlbaum.

Anderson, G. (1998). *Fundamentals of educational research* (2nd ed.). Bristol, PA: Falmer Press.

Anderson, L. (2006). Analytic auto-ethnography. *Journal of Contemporary Ethnography, 35*(4), 373-395.

APA Work Group of the Board of Educational Affairs.(1997, November).*Learner centered psychological principles: A framework for school reform and redesign* (Rev. Ed.). Washington, DC: American Psychological Association.

Banner, J., & Cannon, H. (1997).*The elements of teaching.* New Haven: Yale University Press.

Barone, T. (2006). Arts-based educational research: Then, now, and later. *Studies in Art Education, 48*(1), 4-8.

Barr, A. S. (1958). Characteristics of successful teachers. *Phi Delta Kappan, 39,* 282-284.

Beane, J. (1995). Curriculum integration and the disciplines of knowledge. *Phi Delta Kappan, 76*(8), 616-622.

Belbase, S. (2006). *My journey of learning and teaching mathematics from traditionalism to constructivism: A portrayal of pedagogical metamorphosis* (MPhil Dissertation). Kathmandu University, Nepal.

Birch, S. H., & Ladd, G. W. (1996). Interpersonal relationships in the school environment and children's early school adjustment: The role of teachers and

peers. In J. Juvonen & K. R. Wentzel (Eds.), *Social motivation: Understanding children's school adjustment* (pp. 199–225). New York: Cambridge University Press.

Birch, S. H., & Ladd, G. W. (1998).Children's interpersonal behaviors and the teacher-child relationship. *Developmental Psychology, 34*, 934-946.

Boals, B. M., Tyree, C. L., & Barker, R. (1990).*Children in poverty: Providing and promoting quality education* (Report No. PS 020 858). Jonesboro: Arkansas State University, Department of Elementary Education.

Booth, S. A. (1992).*Learning to program: A phenomenographic perspective.* Goteborg: Acta Universtatis Gothoburgensis.

Brickhouse, N. W., & Kittleson, J. M. (2006).Visions of curriculum, community and science. *Educational Theory, 56*(2), 191-204.

Brookfield, S. (2000). The concept of criticality reflective practice. In A. L. Wilson & E. R. Hayes (Eds.), *Handbook of adult and continuing education* (pp 33-49).San Francisco, CA: Jossey-Bass.

Brophy, J. E., & Evertson, C. M. (1976).*Learning from teaching: A developmental perspective*. Boston: Allyn & Bacon.

Bullough, R., & Pinnegar, S. (2001). Guidelines for quality autobiographical forms of self-study research. *Educational Research, 30*(3), 13-21.

Burton, J. K., & Moore, D. M. (1989). Behavioursim. In C. K. Damerow, A. Bishop, & P. Gerdes (Eds.), *Mathematics, education and society: Science and technology education* (pp. 16-19). Paris: UNESCO.

Cobb, P. (1994). Experimental, cognitive and anthropological perspectives in mathematics education. *For the Learning of Mathematics, 9*(2), 32-43.

Cohen, L., Manion, L., & Morrison, K. (2000).*Research methods in education* (5th ed.). London: Routledge Farmer.

Covey, S. (1983).*The seven habits of highly effective people*. New York: Simon and Schuster.

Creswell, J. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, New Jersey: Pearson Education.

Denzin, N. K. (1997). *Performance ethnography: A critical pedagogy and the politics of culture.* Thousand Oaks, CA: Sage.

Doda, N., & Knowles, T. (2008).Listening to the voices of young adolescents. *Middle School Journal*, *39*(3), 26-33.

Ellis, C. (2004; 2005). *Revision: Auto-ethnographic reflections on life and work.* London: Walnut Creek Left Coast Press.

Ellis, C., & Bochner, A. P. (2000). Autoethnography, personal narrative, reflexibility. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 733-761). Thousand Oaks, CA: Sage Publications.

Ernest, P. (1990). *The philosophy of mathematics education*. London and New York: Falmer Press.

Ernest, P. (1994). *What is social constructivism in the psychology of mathematics education*. Lisbon: University of Lisbon.

Ernest, P. (1996). *Is mathematics discovered or invented*? Exeter: University of Exeter.

Ernest, P. (1996). Popularization: Myths, mass media and modernism. In A. J. Bishop (Ed.), *The international handbook of mathematics education* (pp. 785 – 817). Dordrecht: Kluwer Academic.

Ernest, P. (1996). The nature of mathematics and teaching. In *Philosophy of Mathematics Education Newsletter 9, POME*. UK: University of Exeter.

Ernest, P. (1998). The impact of beliefs on the teaching of mathematics. In P. Ernest (Ed.), *Mathematics teaching: The state of the art* (pp. 249-254). London: Falmer.

Ernest, P. (2009). Postmodernism and the subject of mathematics. In M. Walshaw (Ed.), *Mathematics education within the postmodern* (pp. 15-33). Greenwich, CT: Information Age Publishing.

Fleener, M. J., Carter, A., & Reeder, S. (2004). Language games in the mathematics classroom: Teaching a way of life. *Journal of Curriculum Studies, 36*(4), 445-468.

Frey, L. M., & Wilhite, K. (2005). Our five basic needs: Application for understanding the function of behavior. *Intervention in School and Clinic, 40*(3), 156-60.

Gautam, S. (2011).*"Literacy sucks!" Lived experience of Tharu women* (Unpublished MPhil dissertation).Kathmandu University, Nepal.

Griggs, M., Gagnon, S., Huelsman, T. J., Kidder-Ashley, P., & Ballard, M. (2009). Student–teacher relationships matter: Moderating influences between temperament and preschool social competence. *Psychology in the Schools, 46*(6), 553-567.

Grundy, S. (1987).*Curriculum: Product or praxis*. London, New York and Philadelphia: The Falmer Press.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, London and New Delhi: Sage Publications.

Gunstone, R. F. (1995). Constructivist learning and teaching of science. In B. Hand & V. Prain (Eds.), *Teaching and learning in science: The constructivist classroom* (pp. 3-20). Sydney: Harcourt Brace.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*, 625–638.

Hargreaves, A. (1994). *Changing teachers, changing times: Teacher's work and culture in the postmodern age*. New York: Teachers College Press.

Hiebert, J. (2003). Learning and teaching with understanding. In D. Grouws (Ed.), *Handbook of research on mathematics learning and teaching* (pp. 65–97). New York: Macmillan.

Hudley, C., Daoudd, A., Hershberger, R., Wright-Castro, R., & Polanco, T. (2003, April).*Student engagement, school climate, and future expectations in high school.* Paper presented at the 2003 biennial meeting of the Society for Research in Child Development, Tampa, FL.

Hughes, M. F. (1999). Similar students-dissimilar opportunities for success: High- and low-achieving elementary schools in rural, high-poverty areas of West Virginia. *Journal of Research in Rural Education, 15*(1), 47-58.

Irving, S. E., Moore, D. W., & Hamilton, R. J. (2003).Mentoring for high ability high school students. *Education + Training*, *45*(2), 100-109.

Jacobson, L. O. (2000). Editor's choice: Valuing diversity- student-teacher relationships that enhance achievement. *Community College Review*, *28*(1), 49-66.

Jensen, E. (2009). *Teaching with poverty in mind: What being poor does to kids' brains and what schools can do about it.* Alexandria, VA: ASCD.

Josselson, R. (2007). The ethical attitude in narrative research. In J. D. Clandinin (Ed.), *Handbook of narrative inquiry: Mapping a methodology* (pp. 537-566). Thousand Oaks, CA: Sage Publications, Inc.

Khatri, K. B. (2012). *Aiming to take a shift*: *A journey from t/here* (Unpublished dissertation). Kathmandu University, Nepal.

Kincheloe, J. (2003). *Critical ontology and auto/biography: Being a teacher, developing a reflective teacher persona*. In W. M. Roth (Ed.), *Auto/biography and auto/ethnography: Praxis of research method.* Taipei: Sense Publishers.

Kincheloe, J. L. (2009). *Teacher as researchers: Qualitative inquiry as a path to empowerment*. London: The Falmer Press.

Koplow, L. (2002). *Creating schools that heal.* New York: Teachers College Press.

Lakoff, G., & Johnson, M. (1980).*Metaphors we live by*. Chicago and London: The University of Chicago Press.

Landsford, J. E., Antonucci, T. C., Akiyama, H., & Takahashi, K. (2005). A quantitative and qualitative approach to social relationships and well-being in the United States and Japan. *Journal of Comparative Family Studies*, *36*(1), 1-22.

Lax, A. (1999).*Contemporary issues in mathematics education.* New Orleans: Mathematical Sciences Research Institute Publication.

Lee, S. J. (2007). The relations between the student-teacher trust relationship and school success in the case of Korean middle schools. *Educational Studies*, *33*(2), 209- 216.

Lee, V. E., & Burkum, D. T. (2003).Dropping out of high school: The role of school organization and structure. *American Educational Research Journal, 40,* 353-393.

Liu, J. (1997). The emotional bond between teachers and students: Multi-year relationships. *Phi Delta Kappan, 79*(2), 156-57.

Luitel, B. C. (2009). *Culture, worldview and transformative philosophy of mathematics education in Nepal: A cultural-philosophical inquiry* (Unpublished doctoral dissertation). Curtin University of Technology, Australia.

Luitel, B. C., & Taylor, P. C. (2003).*Critiquing situatedness: An instegrated approach to improving a researcher's practice*. Proceedings of Western Australian Institute for Educational Research Forum 2003. Retrieved from http://www.waier.org.au/forums/2003/luitel.html

Luitel, B. C., & Taylor, P. C. (2005).*Overcoming culturally dislocated curricula in a transitional society: An autoethnographic journey towards pragmatic wisdom.* American Educational Research Association.

Luitel, B. C., & Taylor, P. C. (2006). Envisioning transition towards a critical mathematics education: A Nepali educator‘s autoethnographic perspective. In J. Earnest & D. F. Treagust (Eds.), *Educational change and reconstruction in societies in transition: International perspectives* (pp. 91-110). Rotterdam, The Netherlands: Sense.

Luitel, B. C., & Taylor, P. C. (2007).*Envisioning transition towards transformative mathematics education: A Nepali educator’s autoethnographic perspective*. Perth: Black Swan.

Luitel, B. C., Taylor, P. C., & Mphil student of KU. (2012). *Mathematics education research as/ for teacher professional development: Transforming the heart, mind and soul of mathematics education* [Manuscript]. ICME, Korea.

Luitel, B.C. (2003). *Narrative explorations of Nepali mathematics curriculum landscapes*: *An Epic Journey*. MS Dissertation: Curtin University of Technology

Marton, F., & Booth, S. A. (1997).*Learning and awareness.* Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Marton, F., & Tsui, A. B. M. (Eds.).(2003). *Classroom discourse and the space of learning.* Mahwah, NJ and London: Lawrence Erlbaum Associates Publishers.

Marton, F., Runesson, U., & Tsui, A. B. M. (2003).The space of learning. In F. Marton & A. B. M. Tsui (Eds.), *Classroom discourse and the space of learning*. Mahwah, NJ and London: Lawrence Erlbaum Associates Publishers.

Marzano, R., Marzano, J., & Pickering, D. (2003).*Classroom management that works*. New York: McGraw-Hill.

McCombs, B., & Whisler, J. (1997).*The learner-centered classroom and schools: Strategies for enhancing student motivation and achievement.* San Francisco, CA: Jossey-Bass.

McEwan, E. (2002). *10 traits of highly effective teachers.* Thousand Oaks: Corwin Press.

Miller, S. R. (2000). *Falling off track: How teacher-student relationships predict early high school failure rates.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA. (ERIC Document Reproduction Service No. 441907)

Noddings, N. (1988). Schools face crisis in caring. *Education Week, 8*(14), 32.

Noddings, N. (1992). *The challenge to care in schools: An alternative approach to education.* New York: Teachers College Press.

Osterman, K. (2000) Students' need for belonging in the school community. *Review of Educational Research, 70*(3), 323–367.

Paudel, K. P. (2008). *Tharu culture: An ethnographical prospective* (Unpublished dissertation). Kathmandu University, Nepal.

Pianta, R. C. (1994). Patterns of relationships between children and kindergarten teachers. *Journal of School Psychology, 32*, 115-31.

Pianta, R. C. (1999). *Enhancing relationships between children and teachers.* Washington, DC: American Psychological Association.

Rockwell, S. (1997). Mentoring through accessible, authentic opportunities. *Preventing. School Failure, 41*(3), 111-114.

Roeser, R. W., Midgley, C., & Urdan, T. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88,* 408– 422.

Ross, J. A., Hogaboam-Gray, A., McDougall, D., & Bruce, C. (2002). The contribution of technology to the implementation of mathematics education reform: Case studies of grade 1–3 teaching. *Journal of Educational Computing Research, 26*(1), 87–104.

Saul, D. (2005). Education unplugged: Students sound off about what helps them learn. *Education Canada, 45*(2), 18-20.

Schubert, W. H. (1986). *Curriculum: Perspective, paradigm, and possibility*. New York: Macmillan.

Silins, H., & Murray-Harvey, R. (1995, April).*Quality schooling versus school performance: What do students and teachers think?* Paper presented at the

annual meeting of the American Educational Research Association, San Francisco, CA.(ERIC Document Reproduction Service No. 385531)

Spencer, R. (2006). Understanding the mentoring process between adolescents and adults. *Youth and Society, 37*(3), 287-315.

Stemhagen, K., & Smith, J. (2008). Dewey, democracy, and mathematics education: Reconceptualizing the last bastion of curricular certainty. *Education and Culture*, *24*(2), 25– 40.

Strahan, D. B., & Layell, K. (2006). Connecting caring and action through responsive teaching: How one team accomplished success in a struggling middle school. *The Clearing House, 79*(3), 147-153.

Taylor, P. C. (1996, May). *Constructivism and interpretative research.* Paper presented at a seminar, Science Education Centre, National Taiwan Normal University, Taipei.

Taylor, P. C. (2012). *Transformative research for meaning-centered professional development*. In O. Kovbasyuk & P. Blessinger (Eds), *Meaning-centered education: International prospective and exploration in higher education.* New York: Routledge.

Taylor, P. C., & Settelmaier, E. (2003).Critical autobiographical research for science educators. *Journal of Science Education Japan, 27*(4), 233–244.

Taylor, P. C., Settellmaier, E., & Luitel, B. C. (2009).*Multi-paradigmatic transformative research as/for teacher education: An integral perspective.*

Treagust, D., Duit, R., & Fraser, B. (1996).*Improving teaching and learning in science and mathematics.* New York: Teachers College Press.

Vanzetti, N., & Duck, S. (Eds.). (1996). *A lifetime of relationships*. London: International Thomson Publishing Europe.

Von Glasersfield, E. (1995). A constructivist approach to teaching. In L. Steffe & J. Gale (Eds.), *Constructivism in education* (pp. 3-16). New Jersey: Lawrence Erlbaum Associate.

Willison, J., & Taylor, P. (2006).Complementary epistemologies of science teaching. In *Metaphor and analogy in science education* (pp. 25-36).

Yero, J. L. (2001). *Myths about knowledge.* Retrieved Nov. 15, 2012 from Teacher's Mind Resources http://www.TeachersMind.com

Yero, J. L. (2002). *Teaching in mind: How teacher thinking shapes education*. Hamilton, MT: Mind flight Publishing

Young, R. (1992). *Critical theory and classroom talk*. Great Britain: Longdunn Press.